Hybrid Position/Force Control of Manipulators

DOI: 10.1115/1.3139652
Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 1981, 103, 126-133.

#	Paper	IF	Citations
2074	.		5
2073	Analysis of constrained elastic manipulations.		4
2072	An efficient method for analysis of practical stability of robots interacting with dynamic environment.		2
2071	.		5
2070	Stable hybrid position/force control for redundant manipulators.		1
2069	Constrained motion control of a robot manipulator.		1
2068	A survey of force control of robot manipulators using soft computing techniques.		3
2067	Position and force control of robot manipulators using neural networks.		1
2066	Fundamental principles of design of position and force controller for robot manipulators.		
2065	Compliance and Force Control for Computer Controlled Manipulators. **1981**, 11, 418-432		882
2064	General Principles of Control Synthesis of Robots and Manipulators. **1982**, 1-30		
2063	A Procedure for the Interactive Dynamic Control Synthesis of Manipulators. **1982**, 12, 521-528		14
2062	Calculation of robot joint rates and actuator torques from end effector velocities and applied forces. **1983**, 18, 193-198		11
2061	An anatomy of industrial robots and their controls. **1983**, 28, 133-153		72
2060	Robot programming. **1983**, 71, 821-841		164
2059	Joint torque control by a direct feedback for industrial robots. **1983**, 28, 153-161		130
2058	Coordinated complaint motion. **1983**,		

2057	Pole Placement Self-Tuning Control of Manipulators. **1983**, 16, 27-33	
2056	Multiprocessor Control of a Telemanipulator with Optical Proximity Sensors. **1984**, 3, 40-50	19
2055	Robust compensation for a robotic manipulator. **1984**, 29, 564-567	1
2054	Automatic Synthesis of Fine-Motion Strategies for Robots. **1984**, 3, 3-24	518
2053	The UTAH/M.I.T. Dextrous Hand: Work in Progress. **1984**, 3, 21-50	434
2052	.	10
2051	Nonadaptive dynamic control for manipulation robots: Centralized or decentralized control. **1984**, 1, 379-393	3
2050	Robotics. **1984**, 17, 283-292	3
2049	Adaptive self-tuning control of manipulators in task coordinate system.	
2048	Experiments in Balance with a 3D One-Legged Hopping Machine. **1984**, 3, 75-92	246
2047	Sensory Feedback Based on the Artificial Potential for Robot Manipulators. **1984**, 17, 2381-2386	16
2046	Controlling a manipulator using sensory motor interaction. **1984**, 2, 155-159	3
2045	Task Representation and Constraint Analysis for Hybrid Position/Force Controller Design. **1985**, 18, 69-74	1
2044	Implementation of Force Feedback in "Gross Motion" Control of Manipulation Robots. **1985**, 18, 85-90	1
2043	On the Control of a Sensorized Artificial Finger for Tactile Exploration of Objects. **1985**, 18, 251-256	
2042	Robotics software systems. **1985**, 2, 1-12	8
2041	A preview approach to force control of robot manipulators. **1985**, 20, 449-464	10
2040	Compliance in robot manipulation. **1985**, 25, 5-12	1

2039	A unified approach to manipulator modeling.	1
2038	Control of tool/Workpiece contact force with application to robotic deburring.	14
2037	Non-Adaptive and Adaptive Control of Manipulation Robots. **1985**,	44
2036	The dynamics and control of robotic manipulators. **1985**, 8, 201-211	2
2035	Compliant control of robotic manipulators with resolved acceleration. **1985**,	18
2034	The effect of wrist force sensor stiffness on the control of robot manipulators.	42
2033	.	30
2032	Joint self-tuning with cartesian setpoints. **1985**,	
2031	Compliance at the end effector of an electrohydraulically controlled robot. **1985**,	
2030	Historical perspective and state of the art in robot force control.	140
2029	Hybrid control of robot manipulators.	10
2028	A geometric approach to deriving position/Force trajectroy in fine motion.	2
2027	Real-time cartesian coordinate hybrid control of a PUMA 560 manipulator.	3
2026	Hybrid position/Force control of multi-arm cooperating robots.	147
2025	On dynamic models of robot force control.	90
2024	Robot Gripper Control System Demonstrating PVDF Piezoelectric Sensors. **1986**,	2
2023	Special grasping configurations with dexterous hands.	9
2022	Quasi-static analysis: A method for predicting grasp stability.	13

2021	Singular systems of differential equations as dynamic models for constrained robot systems.	83
2020	Experiments in force control of robotic manipulators.	67
2019	Robust compliant motion for manipulators, part I: The fundamental concepts of compliant motion. **1986**, 2, 83-92	234
2018	.	254
2017	References. **1986**, 33, 357-375	
2016	Control of Manipulator with Force Sensing Capability. **1986**, 19, 301-306	
2015	Using Backprojections for Fine Motion Planning with Uncertainty. **1986**, 5, 19-45	161
2014	Mechanics and Planning of Manipulator Pushing Operations. **1986**, 5, 53-71	300
2013	.	2
2012	Grasping and manipulation of objects by articulated hands.	14
2011	Flexible handling by gripper with consideration of characteristics of objects.	8
2010	Dynamic hybrid position/force control of robot manipulators description of hand constraints and calculation of joint driving force.	31
2009	The fundamental concepts of robust compliant motion for robot manipulators.	32
2008	Robot Manipulator Control under Unix RCCL: A Robot Control "C" Library. **1986**, 5, 94-111	87
2007	Force-position-velocity control with self-tuning for robotic manipulators.	9
2006	Implementation of Force Feedback in Manipulation Robots. **1986**, 5, 66-76	20
2005	Direct teaching and automatic program generation for the hybrid control of robot manipulators.	25
2004	An Anthropomorphic Robot Finger for Investigating Artificial Tactile Perception. **1987**, 6, 25-48	96

2003	C-surface applied to the design of an hybrid force-position robot controller.	19
2002	On the Implementation of an Adaptive Hybrid Position/Force Control for Manipulators. **1987**, 201, 403-412	
2001	Adaptive strategies in constrained manipulation.	63
2000	Kinematic stability issues in force control of manipulators.	1
1999	Multi-variable control of robot manipulators. **1987**, 2, 181-191	
1998	The Effect of coulomb friction and stiction on force control.	80
1997	Mechanics of coordinative manipulation by multiple robotic mechanisms.	114
1996	Position-based impedance control - Achieving stability in practice. **1987**,	21
1995	On the Dynamics of Direct Manual Control. **1987**, 20, 321-326	
1994	Stable execution of contact tasks using impedance control.	193
1993	Eigenvalue assignment and performance index based force-position control with self-tuning for robotic manipulators.	6
1992	Design of force/position controllers for manipulators. **1987**,	0
1991	Tabulation of the Symbolic Midframe Jacobian of a Robot Manipulator. **1987**, 6, 85-97	1
1990	Historical Perspective and State of the Art in Robot Force Control. **1987**, 6, 3-14	634
1989	.	4
1988	.	147
1987	Force control of direct-drive manipulators for surface following.	12
1986	A unified approach for motion and force control of robot manipulators: The operational space formulation. **1987**, 3, 43-53	1709

1985	Control of tool/workpiece contact force with application to robotic deburring. **1987**, 3, 7-18		54
1984	Sensor-based control of robotic manipulators using a general learning algorithm. **1987**, 3, 157-165		195
1983	Dynamic hybrid position/force control of robot manipulators--Description of hand constraints and calculation of joint driving force. **1987**, 3, 386-392		275
1982	Dynamic hybrid position/Force control of robot manipulators--Controller design and experiment.		14
1981	Hybrid position/Force control for coordination of a two-arm robot.		50
1980	Control of redundant manipulators for task compatibility.		45
1979	Design of robot controllers. **1987**, 2, 9-20		10
1978	Application for a manipulator-gripper in an assembly cell.		
1977	A study of active compliant motion control methods for rigid manipulators based on a generic scheme.		23
1976	Problems and research issues associated with the hybrid control of force and displacement.		45
1975	.		32
1974	Adaptive force control of manipulators with consideration of object dynamics.		18
1973	State and parameter estimation for robotic manipulators using force measurements. **1987**, 32, 1055-1066		36
1972	Active force feedback in industrial robotic assembly: A case study. *International Journal of Advanced Manufacturing Technology*, **1987**, 2, 27-40	3.2	12
1971	Apply force/torque sensors to robotic applications. **1987**, 3, 189-194		14
1970	Adaptive force and position control of manipulators. **1987**, 4, 551-578		20
1969	Adaptive control strategies for cooperative dual-arm manipulators. **1987**, 4, 653-684		2
1968	Generalized inverses for robotic manipulators. **1987**, 22, 507-514		17

1967	Force interaction and allocation for the legs of a walking vehicle. **1987**, 3, 546-555	46
1966	Introduction to dynamic models for robot force control. **1987**, 7, 48-52	77
1965	Development of a novel intelligent robotic manipulator. **1987**, 7, 9-15	39
1964	Modified hybrid control for an electrohydraulic robot leg. **1987**, 7, 12-19	4
1963	Controller Design for Robot Arm Guarded and Compliant Motions. **1987**, 17, 650-654	
1962	. **1988**, 18, 312-316	2
1961	. **1988**, 4, 549-556	207
1960	. **1988**, 4, 163-173	63
1959	. **1988**, 4, 223-228	16
1958	. **1988**, 4, 287-293	6
1957	. **1988**, 4, 324-333	34
1956	. **1988**, 4, 699-705	127
1955	Automatic centring system for a roundness tester using force feedback techniques. **1988**, 10, 19-23	1
1954	Application of robots in assembly automation. **1988**, 4, 175-180	2
1953	The design and control of a robot finger for tactile sensing. **1988**, 5, 567-581	5
1952	.	130
1951	A Device that Can Regulate Mechanical Impedance Continuously.	
1950	Application Of Rule-based Fuzzy Control Approach With Dynamic Compensation To Robotic Manipulations.	

1949	An analysis of the sources of musculoskeletal system impedance. **1988**, 21, 1011-25	67
1948	Experimental results in the implementation of control algorithms forthe two-arm robotic manipulation of a single object. **1988**,	
1947	.	145
1946	. **1988**, 24, 584-590	17
1945	.	1
1944	Compliant Robot Motion II. A Control Approach Based on External Control Loops. **1988**, 7, 18-33	186
1943	. **1988**, 24, 535-541	29
1942	Symmetric Hybrid Position/force Control Of Two Cooperating Robot Manipulators.	9
1941	.	6
1940	.	1
1939	Stability Feature of the Hybrid Position/Force Control Scheme for Robot Manipulator.	2
1938	Development Of A force Control System For Multi-degree-of-freedom Machines.	1
1937	Application of Microcomputer-Based A.M.F.C. Technique to Trajectory / Pressure Control of Robotic Manipulator Equipped with Pressure Sensor.	
1936	A Compliance Control Mehtod Suggested by Muscle Networks In Human Arms.	6
1935	.	2
1934	Joint-Compliance Control of the Multiple DOF Manipulator.	1
1933	. **1988**, 24, 523-534	10
1932	. **1988**, 33, 419-426	456

1931	.	45
1930	.	9
1929	.	18
1928	.	18
1927	.	2
1926	.	63
1925	.	18
1924	.	8
1923	.	34
1922	.	8
1921	.	16
1920	.	13
1919	.	22
1918	Modelling and control of two coordinated robot arms. **1988**, 352-360	0
1917	Force Control Of Robotic Manipulators.	
1916	A New Hybrid Position/force Control Method For Robots.	
1915	Compliant Robot Motion I. A Formalism for Specifying Compliant Motion Tasks. **1988**, 7, 3-17	132
1914	Robot programming languages: the statement of a problem*. **1988**, 6, 141-148	4

1913	A Task Space Decoupling Approach to Hybrid Control of Manipulators. **1988**, 21, 157-162	2
1912	The Karlsruhe Hand. **1988**, 21, 383-388	6
1911	Control System Design of a Dexterous Hand for Industrial Robots. **1988**, 21, 389-394	3
1910	Stability Analysis of Position-Force Control Using Linearized Cartesian Space Model. **1988**, 21, 249-254	1
1909	Force/Position Control of Manipulators in Task Space with Dominance in Force. **1988**, 21, 137-143	5
1908	A Force/Positiun Hybrad Self-tuning Cuntrol Of Manipulaturs.	
1907	FORCE/POSITION CONTROL OF MANIPULATORS IN TASK SPACE WITH DOMINANCE IN FORCE. **1989**, 137-143	1
1906	.	4
1905	The Role of Dynamic Models in Cartesian Force Control of Manipulators. **1989**, 8, 51-72	55
1904	.	15
1903	.	18
1902	.	5
1901	.	15
1900	.	46
1899	.	18
1898	.	4
1897	.	9
1896	.	12

1895	.		6
1894	.		7
1893	.		2
1892	.		
1891	.		2
1890	.		30
1889	.		7
1888	Compliant motion control for robot manipulators. **1989**, 49, 745-760		5
1887	.		
1886	.		2
1885	.		13
1884	.		8
1883	A new approach to force and position control of robot manipulators.		5
1882	Cartesian control of redundant robots. **1989**, 6, 427-459		24
1881	On-line exploration of an unknown surface by a robotic probe. **1989**, 6, 521-543		2
1880	. **1989**, 19, 840-846		18
1879	Hybrid control of a two-arm robot for complex tasks. *Robotics and Autonomous Systems*, **1989**, 5, 323-332	3.5	10
1878	Dynamic two arm hybrid position/force control. *Robotics and Autonomous Systems*, **1989**, 5, 369-376	3.5	7

1877	Trajectory tracking control for industrial robots. **1989**, 20, 273-281	1
1876	. **1989**, 5, 418-425	40
1875	.	2
1874	.	13
1873	. **1989**, 5, 112-118	3
1872	Design and implementation of a robot control system with traded and shared control capability.	66
1871	Control of robotic manipulators by joint acceleration controller.	4
1870	. **1989**, 5, 426-434	558
1869	. **1989**, 5, 30-46	255
1868	.	15
1867	.	
1866	Robot gripper control system using PVDF piezoelectric sensors. **1989**, 36, 129-34	23
1865	An approach to force and position control of robot manipulators.	12
1864	.	2
1863	.	0
1862	.	1
1861	.	1
1860	.	0

1859	Joint asymptotic stability of robotic manipulators during compliant and free motion.		
1858	Motion Planning with Uncertainty: Practical Computation of Non-Maximal Preimages.		3
1857	.		
1856	. **1989**, 5, 166-173		46
1855	.		5
1854	.		2
1853	Adaptive Force/Motion Control of Constrained Robots. **1989**, 22, 249-254		
1852	Hybrid position force control of robot manipulator with an instrumented compliant wrist. **1990**, 244-270		4
1851	Using tactile data for real-time feedback. **1990**, 474-496		1
1850	Learning Control of Robotic Manipulators Based on Neurological Model CMAC. **1990**, 23, 249-254		2
1849	Automatic Fine-Motion Planning Based on Position/Force States. **1990**, 23, 301-307		
1848	On the invariance of the hybrid position/force control. **1990**, 3, 233-250		29
1847	Neural networks in robotics: A survey. **1990**, 3, 51-66		37
1846	Stability of robotic manipulators during transition to and from compliant motion. **1990**, 26, 861-874		19
1845	Position error compensation of robotic contour end-milling. **1990**, 30, 613-627		5
1844	Force control of high-speed, lightweight robotic manipulators. **1990**, 14, 474-479		6
1843	Autonomous single arm ORU changeout strategies, control issues, and implementation. *Robotics and Autonomous Systems*, **1990**, 6, 221-241	3.5	6
1842	Predictive displays and shared compliance control for time-delayed telemanipulation.		24

[-]

1841	.	1
1840	.	120
1839	.	12
1838	.	12
1837	.	6
1836	.	15
1835	Tactile Sensors: Application Assessment for Robotic Handling of Limp Materials. **1990**, 227-237	2
1834	Experimental Modeling of Robot Manipulators with Actuator Dynamics for Force and Motion Control.	
1833	Minimum Momentum Grasp Planning.	1
1832	Sensor Integrated 3-D Autonomous Contouring Control.	1
1831	Neural Network Applications for Robotic Motion Control.	9
1830	. **1990**,	5
1829	Impedance control of a direct-drive manipulator without using force sensors. **1990**, 5, 183-205	16
1828	.	54
1827	.	2
1826	.	19
1825	. **1990**,	10
1824	.	14

1823	Control And Communication Of Two Arms.	
1822	. **1990**,	0
1821	Manipulators Constrained by Stiff Contact: Dynamics, Control, and Experiments. **1990**, 9, 40-58	15
1820	Shape recovery from robot contour-tracking with force feedback. **1990**, 5, 257-273	4
1819	. **1990**, 6, 303-311	22
1818	.	4
1817	. **1990**, 6, 322-330	51
1816	.	1
1815	.	0
1814	. **1990**,	3
1813	.	4
1812	. **1990**,	2
1811	.	2
1810	.	32
1809	Planning Multi-Step Error Detection and Recovery Strategies. **1990**, 9, 3-60	53
1808	.	3
1807	Postural stability of constrained three dimensional robotic systems. **1990**,	6
1806	. **1990**, 35, 1051-1054	6

1805 . **1990**, 3

1804 . **1990**, 35, 710-714 33

1803 . 17

1802 . **1990**, 37, 6-12 72

1801 . **1990**, 6, 357-367 16

1800 . 63

1799 . 7

1798 . **1990**, 8

1797 . **1991**, 27, 275-281 13

1796 . **1991**, 4

1795 . **1991**, 2

1794 . 2

1793 . **1991**, 2

1792 . 2

1791 . 45

1790 . 20

1789 . 2

1788 . **1991**,

1787	. **1991**, 7, 95-104	41
1786	.	5
1785	.	1
1784	.	3
1783	.	13
1782	.	6
1781	Series-Parallel Dualities in Actively Coordinated Mechanisms. **1991**, 10, 473-480	90
1780	. **1991**, 7, 21-30	7
1779	. **1991**,	4
1778	.	13
1777	.	3
1776	.	1
1775	.	15
1774	. **1991**, 36, 365-371	76
1773	. **1991**, 7, 408-415	138
1772	. **1991**, 36, 967-971	76
1771	Control of Elastic Robots. **1991**, 43-54	0
1770	. **1991**, 7, 320-332	139

1769	Theory and Applications of Configuration Control for Redundant Manipulators. **1991**, 205-258		2
1768	Hybrid Force-Position Control for Robots in Contact with Dynamic Environments. **1991**, 24, 177-182		
1767	On the Stability of a Force/Position Control Scheme for Robot Manipulators. **1991**, 24, 183-188		1
1766	Advanced Man-machine Interfaces And Control Architecture For Dexterous Teleoperations.		10
1765	Constrained Motion Control of Manipulation Robots □A Contribution. **1991**, 9, 157-163		14
1764	Adaptive force control of screwdriving with a positioning-controlled manipulator. *Robotics and Autonomous Systems*, **1991**, 7, 57-65	3.5	10
1763	Force control of a two-linke planar manipulator with one flexible link. *Robotics and Autonomous Systems*, **1991**, 8, 281-289	3.5	3
1762	Analysis and control of a kinematically redundant manipulator. **1991**, 17, 147-161		1
1761	Hybrid control: A constrained motion perspective. **1991**, 8, 135-158		12
1760	. **1991**, 21, 13-24		48
1759	. **1991**, 21, 620-633		171
1758	Tracking and force control for a class of robotic manipulators. **1991**, 1, 133-150		9
1757	Using Tactile Data for Real-Time Feedback. **1991**, 10, 88-102		53
1756	Compliant motion control of the robot. **1991**, 14, 407-417		1
1755	.		
1754	. **1991**,		
1753	.		8
1752	.		

1751	.	
1750	.	10
1749	. **1991**,	2
1748	.	2
1747	. **1991**,	1
1746	.	1
1745	Force sensing as an aid to assembly. **1991**, 29, 293-301	14
1744	.	7
1743	. **1991**,	4
1742	. **1991**,	
1741	.	3
1740	. **1991**,	6
1739	. **1991**,	17
1738	.	14
1737	A Symbolic Teleoperator Interface For Time-delayed Underwater Robot Manipulation.	9
1736	Robotic Deburring Based On Fuzzy Force Control.	3
1735	Force Controlled Grinding Robot System For Unstructured Tasks.	6
1734	Time Delay Insensitive Teleoperation.	8

1733	Symmetric kinematic formulation and non-master/slave coordinated control of two-arm robots. **1992**, 7, 361-383	63
1732	Hybrid Position/Force Control: A Correct Formulation. **1992**, 11, 299-311	53
1731	. **1992**, 8, 535-544	77
1730	. **1992**, 8, 663-670	19
1729	. **1992**, 8, 519-534	29
1728	An Analysis Of Manipulator Force Control Strategies Applied To An Experimentally Derived Model.	6
1727	Effects of non-tip external forces and impulses on robot dynamics.	3
1726	A Neural Network Robot Force Controller.	2
1725	.	13
1724	.	10
1723	.	1
1722	.	
1721	.	4
1720	.	1
1719	.	
1718	.	0
1717	.	4
1716	.	2

1715	.	10
1714	Contact force analysis of robotic manipulators. **1992**, 15, 53-66	
1713	Motion control of robot manipulators by a joint acceleration controller. **1992**, 7, 41-56	5
1712	.	2
1711	.	3
1710	.	
1709	.	6
1708	Randomization in Robot Tasks. **1992**, 11, 399-436	25
1707	. **1992**, 8, 383-394	207
1706	.	1
1705	.	1
1704	.	7
1703	.	5
1702	.	
1701	.	10
1700	.	2
1699	.	0
1698	.	

1697	The application of the minimal control synthesis algorithm to the hybrid control of a class 1 manipulator. **1992**, 56, 499-513	8
1696	A Discrete Event Controller Using Petri Nets Applied To Assembly.	11
1695	.	12
1694	. **1992**, 37, 1501-1505	48
1693	.	9
1692	.	3
1691	.	2
1690	.	1
1689	.	
1688	.	11
1687	.	6
1686	.	3
1685	Force Control Of The Robot Finger Joint Equipped With Mechanical Compliance Adjuster.	21
1684	. **1992**, 8, 132-138	5
1683	Precision motor control system for VCR using disturbance and velocity observer. **1992**, 38, 747-754	3
1682	.	
1681	.	2
1680	. **1992**, 39, 472-489	223

1679	. **1992**, 8, 176-185		220
1678	.		10
1677	A General Reduced Dynamic Model For Control And Simulation Of Constrained Robots.		1
1676	Tracking and force control for a class of robotic manipulators. **1992**, 185-203		
1675	Compliant Motion Control of Robots by Using Variable Impedance. *International Journal of Advanced Manufacturing Technology*, **1992**, 7, 322-332	3.2	4
1674	HYBRID FORCE-POSITION CONTROL FOR ROBOTS IN CONTACT WITH DYNAMIC ENVIRONMENTS. **1992**, 177-182		
1673	Constructive recognizability for task-directed robot programming. *Robotics and Autonomous Systems*, **1992**, 9, 41-74	3.5	12
1672	Force and motion control of a single flexible manipulator link. **1992**, 9, 87-99		11
1671	Combined path and force control for elastic manipulators. **1992**, 6, 237-249		6
1670	The development of a robotic compliance control system. **1992**, 32, 477-486		2
1669	. **1992**, 22, 92-102		12
1668	. **1992**, 22, 945-952		
1667	An adaptive force/position regulator for robot manipulators. **1993**, 7, 389-403		17
1666	Adaptive motion-force control of robots with uncertain constraints. **1993**, 10, 393-399		1
1665	Robot end-effector orientation control using proximity sensors. **1993**, 10, 323-331		3
1664	. **1993**, 23, 374-381		7
1663	Shared/traded control of telerobots under time delay. **1993**, 19, 481-494		3
1662	Paradigm for compliant motion control in environments with unknown or variable dynamics. **1993**, 19, 143-155		

1661	Direct adaptive impedance control of robot manipulators. **1993**, 10, 217-248	83
1660	Set point trajectory and internal force control in redundant dual-arm manipulation. **1993**, 10, 1031-1073	
1659	Localization of hybrid controllers for manipulation on unknown constraints. **1993**, 7, 301-320	
1658	Feedback linearization of differential-algebraic systems and force and position control of manipulators. **1993**, 3, 323-352	4
1657	Guest editor's foreword special issue on computational robotics: The geometric theory of manipulation, planning, and control. **1993**, 10, 91-101	2
1656	Randomization for robot tasks: Using dynamic programming in the space of knowledge states. **1993**, 10, 248-291	20
1655	Dynamic control of coordinated redundant robots with torque optimization. **1993**, 29, 1411-1424	6
1654	.	3
1653	.	20
1652	. **1993**, 9, 361-373	196
1651	.	34
1650	.	37
1649	Adaptive force-based impedance control.	11
1648	Robot force control: A review. **1993**, 3, 377-398	41
1647	. **1993**, 9, 226-231	69
1646	A study of force control transfer functions identified on a PUMA 560 arm.	2
1645	. **1993**, 9, 423-431	76
1644	. **1993**, 9, 220-226	82

1643	Coordinated Dynamic Hybrid Position/Force Control for Multiple Robot Manipulators Handling One Constrained Object. **1993**, 12, 219-230	119
1642	.	1
1641	.	2
1640	.	5
1639	. **1993**, 9, 863-867	27
1638	.	3
1637	Multiple robot manipulators' cooperative compliant manipulation on dynamical environments.	4
1636	.	
1635	Force control of manipulator with considering flexibility.	1
1634	.	12
1633	.	19
1632	.	3
1631	.	6
1630	Towards task-directed coordinated manipulation.	1
1629	. **1993**, 9, 286-296	30
1628	.	
1627	.	0
1626	.	1

1625 Task-level adaptation using a discrete event controller for robotic assembly. 5

1624 . **1993**, 9, 308-313 69

1623 .

1622 . **1993**, 38, 1634-1650 152

1621 . 4

1620 .

1619 . 10

1618 .

1617 . 1

1616 . 4

1615 . 28

1614 . **1993**, 9, 831-836 44

1613 . 12

1612 . 16

1611 Combined adaptive control of constrained robot manipulators. 0

1610 Bracing to Increase the Natural Frequency of a Manipulator: Analysis and Design. **1993**, 12, 560-571 5

1609 Dynamic Coordination of Multiple Robot Arms With Flexible Joints. **1993**, 12, 505-528 15

1608 . **1993**, 40, 89-95 20

1607	. **1993**, 40, 473-485	164
1606	.	
1605	.	
1604	.	4
1603	A model reference approach to adaptive impedance control of robot manipulators.	5
1602	A Theoretical and Experimental Investigation of Impact Control for Manipulators. **1993**, 12, 351-365	117
1601	An adaptive implicit hybrid position force control of robots: Implementation problems. **1993**, 160-169	
1600	Coordinated manipulation of polygonal objects.	6
1599	.	
1598	.	
1597	.	
1596	.	
1595	.	
1594	.	
1593	An Investigation of Impedance Control for Robot Manipulators. **1993**, 12, 473-489	10
1592	. **1993**, 38, 598-603	19
1591	.	2
1590	.	3

1589	Motion/force/impedance control for robot tasks.	1
1588	Damping control with consideration of dynamics of environment.	1
1587	.	4
1586	.	1
1585	.	6
1584	Force control of a two-arm robot manipulating a deformable object. **1993**, 255-269	1
1583	Position-Force Adaptive Control for Construction Robots. **1993**, 6, 167-185	3
1582	Control of Robotic Manipulators During General Task Execution: A Discontinuous Control Approach. **1993**, 12, 146-163	59
1581	Robotic Exploration of Surfaces With a Compliant Wrist Sensor. **1993**, 12, 107-120	11
1580	.	4
1579	Force/Position Regulation of Robot Manipulators with Gravity Parameter Adaptation. **1993**, 26, 547-550	
1578	Robust Hybrid Position/Force Control for Robot Manipulators. **1993**, 26, 551-554	
1577	Modeling and Quasi-Static Hybrid Position/Force Control of Two-link Flexible Manipulators. **1993**, 26, 887-892	
1576	Principle of Orthogonalization for Hybrid Control of Robot Arms. **1993**, 26, 335-340	4
1575	Indefinite Inner Product-Based Decomposition for Hybrid Control of Robot Manipulators. **1993**, 26, 445-448	
1574	On the Stability of Force/Position Controlled Manipulators in Presence of Friction and Stiction. **1993**, 26, 555-560	
1573	Integrating an Operator with a Robotic System. **1993**, 26, 661-664	
1572	.	

1571	Neural network hybrid position/force control.	3
1570	Use of C-surface based force-feedback algorithm for complex assembly tasks. **1993**, 450-462	
1569	Robust and adaptive position/force stabilization of robotic manipulators in contact tasks. **1993**, 11, 373-386	23
1568	Simplification of manipulator dynamic formulations utilizing a dimensionless method. **1993**, 11, 139-147	4
1567	Hybrid Position and Force Control with Unsteady Assembly Dynamics. **1993**, 281-286	
1566	Experimental Results for Force Distribution in Cooperating Manipulator Systems Using Local Joint Control. **1994**, 13, 471-480	4
1565	.	1
1564	.	4
1563	New results on adaptive compliance control for dexterous manipulators.	
1562	.	1
1561	Robot force control without stability problems. **1994**, 132-142	
1560	.	2
1559	.	3
1558	.	1
1557	. **1994**, 14, 14-25	2
1556	.	15
1555	Robotic deburring with a hybrid-compliance end-effector. **1994**, 17, 499-511	0
1554	.	10

1553	On the construction of a geometric constraint frame by integral manifold theory for constrained manipulators. **1994**, 17, 785-796		1
1552	Static Friction Effects During Hard-on-Hard Contact Tasks and Their Implications for Manipulator Design: Communication. **1994**, 13, 508-520		9
1551	.		16
1550	.		4
1549	.		1
1548	.		4
1547	. *IEEE Transactions on Control Systems Technology*, **1994**, 2, 198-206	4.8	8
1546	.		9
1545	. **1994**, 10, 542-548		43
1544	.		2
1543	.		2
1542	.		1
1541	.		4
1540	Stabilization of robot motion and contact force interaction for third-order motor dynamics. **1994**, 10, 257-282		3
1539	Computational considerations in the implementation of force control strategies. **1994**, 9, 121-148		14
1538	A self-organized model for the control, planning and learning of nonlinear multi-dimensional systems using a sensory feedback. **1994**, 4, 337-349		19
1537	Variable structure adaptive motion and force control of robot manipulators. **1994**, 30, 1473-1477		38
1536	Automatic determination of possible velocity and applicable force of frictionless objects in contact from a geometric model. **1994**, 10, 309-322		22

1535	Dynamic hybrid position/force control of a two degree-of-freedom flexible manipulator. **1994**, 11, 355-366	37
1534	Vsc motion and force control of robot manipulators in the presence of environmental constraint uncertainties. **1994**, 11, 503-515	3
1533	External force control of an industrial puma 560 robot. **1994**, 11, 523-540	24
1532	Unconstrained and constrained motion control of a planar two-link structurally flexible robotic manipulator. **1994**, 11, 557-571	10
1531	Compliance control safety: An architecture-independent analysis. **1994**, 11, 725-741	
1530	Constrained motion task control of robotic manipulators. **1994**, 29, 95-114	4
1529	.	4
1528	. **1994**, 24, 1065-1074	13
1527	. **1994**, 1, 4-13	7
1526	.	11
1525	. **1994**, 10, 287-297	67
1524	.	49
1523	.	18
1522	. **1994**, 39, 371-376	27
1521	. **1994**, 41, 12-24	34
1520	A passivity-based force/position control scheme for robot manipulators.	3
1519	. **1994**, 39, 647-652	87
1518	Experimental results for a robust position and force controller implemented on a direct drive robot. **1994**,	

1517	.	1
1516	.	10
1515	.	1
1514	.	6
1513	.	3
1512	.	
1511	.	
1510	.	13
1509	.	
1508	.	1
1507	. **1994**, 10, 453-464	75
1506	Inverse dynamics and feedforward controllers for high precision position/force tracking of flexible joint robots. **1994**, 12, 227-241	10
1505	Experiments on impedance control to derive adaptive strategies. **1994**, 103-119	2
1504	.	
1503	Techniques For Collision Prevention, Impact Stability, And Force Control By Space Manipulators. **1994**, 175-212	3
1502	Supervised Autonomy For Space Telerobotics. **1994**, 139-158	
1501	Decentralized adaptive compliance control of robot manipulators. **1994**, 27, 123-128	
1500	Towards integrated robot planning and control. **1994**, 27, 351-359	

1499	A variable structure force controller for robotic manipulators. **1994**, 27, 481-486		
1498	Hybrid position/force control of constrained manipulators in presence of uncertainties. **1994**, 27, 647-652		
1497	MIMO and SISO Self-Tuning Hybrid Position/Force Control of Robotic Manipulators. **1994**, 27, 163-169		
1496	State-of-the-art and future research directions of robot control. **1994**, 27, 3-14		3
1495	Implementation of operational space control algorithms in an industrial robot controller. **1994**, 27, 103-108		
1494	Theoretical aspect of hybrid position /force control. **1994**, 27, 469-474		1
1493	Contribution to the control of robot interacting with dynamic environment. **1994**, 27, 487-492		1
1492	Experiments with flexible manipulators. **1994**, 27, 585-592		
1491	Stochastic approach in solving kinestatic equations for constrained robot control. **1994**, 27, 639-645		
1490	Robot manipulator contact force control application of fuzzy-neural network.		6
1489	A Lyapunov-Stable Adaptive Scheme for Force Regulation and Motion Control of Robot Manipulators. **1995**, 28, 227-232		
1488	Inverse Force and Motion Control of Constrained Elastic Robots. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1995**, 117, 374-383	1.6	13
1487	The Discrete Event Control of Robotic Assembly Tasks. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1995**, 117, 384-393	1.6	24
1486	.		30
1485	A stiffness control of a manipulator using a fuzzy model.		
1484	Adaptive hybrid force/position control for the Space Station Alpha robotic operations. **1995**, 13, 549-557		1
1483	Experimental results for a robust position and force controller implemented on a direct drive robot **1995**, 13, 11-18		4
1482	Fundamental problems of robot control: Part II A nonlinear circuit theory towards an understanding of dexterous motions*. **1995**, 13, 111-122		19

1481	Decentralized adaptive compliance control of robot manipulators. **1995**, 13, 485-498		3
1480	A compliant control method for disassembly of non-elastic parts using realised motion. **1995**, 13, 591-598		1
1479	Control of grasp stiffness using a multifingered robot hand with redundant joints. **1995**, 13, 351-362		2
1478	Fast stable contact transitions with a stiff manipulator using force and vision feedback.		2
1477	COMRADE: Compliant Motion Research and Development Environment. **1995**, 28, 71-77		
1476	On Force Measurements Time-Delays in Control of Constrained Manipulators. **1995**, 28, 255-260		1
1475	. **1995**, 14, 292-300		70
1474	Robust motion and force control of constrained manipulators by learning. **1995**, 31, 257-262		41
1473	Collision: Modeling, simulation and identification of robotic manipulators interacting with environments. **1995**, 13, 1-44		29
1472	Quality of stabilization of robot interacting with dynamic environment. **1995**, 14, 155-179		13
1471	Robust force/position control of a robot manipulator using time-delay control. *Control Engineering Practice*, **1995**, 3, 1255-1264	3.9	39
1470	Experiments with flexible manipulators. *Control Engineering Practice*, **1995**, 3, 1331-1338	3.9	4
1469	Force distribution in manipulation by a robot hand with equality and inequality constraints. **1995**, 5, 561-583		1
1468	Contribution to the controller design in tasks of robot deburring. **1995**, 30, 363-382		4
1467	Joint-space orthogonalization and passivity for physical interpretations of dextrous robot motions under geometric constraints. **1995**, 5, 269-284		18
1466	Two-arm kinematic posture optimization for fixtureless assembly. **1995**, 12, 55-65		10
1465	Sliding mode force, motion control, and stabilization of elastic manipulator in the presence of uncertainties. **1995**, 12, 315-330		3
1464	. **1995**, 40, 963-968		24

1463	Understanding Action and Sensing by Designing Action-Based Sensors. **1995**, 14, 483-509		46
1462	Environment estimation for enhanced impedance control.		52
1461	Modelling and simulation of redundant robot in contact tasks.		
1460	Theory and Practice of Robots and Manipulators. **1995**,		3
1459	Learning impedance control for robotic manipulators.		4
1458	Contribution to the Position/Force Control of a Robot Interacting with Dynamic Environment in Cartesian Space. **1995**, 171-176		
1457	The Discrete Event Modeling and Trajectory Planning of Robotic Assembly Tasks. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1995**, 117, 394-400	1.6	37
1456	Imposing motion constraints to a force reflecting telerobot through real-time simulation of a virtual mechanism.		26
1455	Implementation of a neuromuscular-like control for compliance on a PUMA 560 robot.		
1454	.		3
1453	An adaptive approach to constrained robot motion control.		9
1452	A theoretical analysis of dynamic interactions between systems.		
1451	Adaptive control for holonomically constrained robots: time-invariant and time-variant cases.		3
1450	Experiments in adaptive model-based force control.		4
1449	Hybrid force/position control for manipulators with motor dynamics using a sliding-adaptive approach.		0
1448	Fine Motion Strategies for Robotic Peg-Hole Insertion. **1995**, 209, 429-448		8
1447	Development of a force controlled robot for grinding, chamfering and polishing.		20
1446	Adaptive Compliant Motion Control for Dexterous Manipulators. **1995**, 14, 270-280		39

1445	Motion and Force Control of Coordinated Robots During Constrained Motion Tasks. **1995**, 14, 351-365	12
1444	Frequency-shaped implicit force control of flexible link manipulators.	6
1443	Impedance control strategy for robotic assembly tasks.	
1442	. **1995**, 11, 504-515	32
1441	. **1995**, 42, 501-507	1
1440	. **1995**, 11, 56-71	15
1439	A new design of adaptive fuzzy hybrid force/position controller for robot manipulators.	5
1438	. **1995**, 42, 123-130	54
1437	. **1995**, 42, 358-366	2
1436	New stability results for direct adaptive impedance control.	6
1435	An analysis of some fundamental problems in adaptive control of force and impedance behavior: theory and experiments. **1995**, 11, 912-921	74
1434	Moving furniture with teams of autonomous robots.	101
1433	Adaptive and sliding control of flexible joint robots in constrained motion.	1
1432	Experiments in dexterous hybrid force and position control of a master/slave electrohydraulic manipulator.	4
1431	Automatic generation of nonlinear task-based transformations for robot contact control implementation.	
1430	. **1995**, 11, 432-441	15
1429	A compliance control strategy for robot manipulators using a self-controlled stiffness function.	1
1428	.	4

1427	Historical perspective of hybrid control in robotics: beginnings, evolution, criticism and trends. **1995**, 30, 519-532		11
1426	Intelligent planning and control for multirobot coordination: An event-based approach. **1996**, 12, 439-452		59
1425	Multi-robot control for flexible fixtureless assembly of flexible sheet metal auto body parts.		16
1424	A simple approach to invariant hybrid control.		8
1423	Synergy-based learning of hybrid position/force control for redundant manipulators.		3
1422	Asymptotic robust constrained robot motion control.		
1421	Grasping with hydraulic fingers-an example of mechatronics. *IEEE/ASME Transactions on Mechatronics*, **1996**, 1, 158-167	5.5	13
1420	Integrating fuzzy control of the dexterous National Taiwan University (NTU) hand. *IEEE/ASME Transactions on Mechatronics*, **1996**, 1, 216-229	5.5	23
1419	Task-oriented force control of parallel link robot for the assembly of segments of a shield tunnel excavation system. *IEEE/ASME Transactions on Mechatronics*, **1996**, 1, 250-258	5.5	17
1418	Hybrid position/force control of flexible-macro/rigid-micro manipulator systems. **1996**, 12, 633-640		64
1417	Force control of constrained flexible manipulators.		5
1416	Force and vision resolvability for assimilating disparate sensory feedback. **1996**, 12, 714-731		59
1415	Composite adaptive control of constrained robots. **1996**, 12, 640-645		14
1414	Experimental robotic manipulator surface touchdown analysis and results.		
1413	Adaptive hybrid visual servoing/force control in unknown environment.		16
1412	A force/position regulator for robot manipulators without velocity measurements.		7
1411	Preliminary results on grasping with vision and touch.		11
1410	Force control of micro robotic finger using fuzzy controllor.		

1409	External force control using cooperating two arms with general kinematic structures.		1
1408	Assembly of segments for shield tunnel excavation system using task-oriented force control of parallel link mechanism.		0
1407	Force control of power shovel for construction of subterrain line.		0
1406	Position-based impedance control of an industrial hydraulic manipulator.		9
1405	Force/position control of robot manipulator via motion dynamics.		
1404	Constraint Formulation for Invariant Hybrid Position/Force Control of Robots. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1996**, 118, 290-299	1.6	5
1403	Variable Structure Hybrid Control of Manipulators in Unconstrained and Constrained Motion. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1996**, 118, 327-332	1.6	4
1402	Motion/Force Control of Robotic Manipulators. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1996**, 118, 386-389	1.6	3
1401	Synthesis of Hybrid Impedance Control Strategies for Robot Manipulators. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1996**, 118, 566-571	1.6	4
1400	The unsupervised learning of assembly using discrete event control.		2
1399	A New Approach to Motion/Force Control of Robot Manipulators During Constrained Tasks. **1996**, 29, 2383-2388		
1398	An Exponentially Stable Adaptive Force/Position Control for Robot Manipulators. **1996**, 29, 7-12		
1397	Adaptive Motion and Force Control of Manipulators During Constrained Motion Tasks. **1996**, 29, 259-264		1
1396	Design of Position/Force Controller Based on the Principle of Consistency. **1996**, 29, 1050-1055		
1395	Parallel Force/Position Control Schemes with Experiments on an Industrial Robot Manipulator. **1996**, 29, 25-30		3
1394	Learning force control with position controlled robots.		10
1393	Mimo and siso self-tuning hybrid position/force control of robotic manipulators. **1996**, 13, 41-51		
1392	Experiments in contact control. **1996**, 13, 53-73		7

1391	Dynamics and control of multiple cooperating manipulators with rolling contacts. **1996**, 13, 619-648		0
1390	Dynamic modeling and control of a multi-robot system for assembly of flexible payloads with applications to automotive body assembly. **1996**, 13, 817-836		26
1389	Simultaneous control of robot manipulator impedance and generalized force and position. **1996**, 31, 1069-1080		1
1388	A passivity-based approach to force regulation and motion control of robot manipulators. **1996**, 32, 443-447		37
1387	Force/position regulation for robot manipulators with unmeasurable velocities and uncertain gravity. **1996**, 32, 939-943		10
1386	Control of constrained manipulators with flexible joints. **1996**, 6, 33-48		4
1385	A method of compliance control of redundant manipulators. **1996**, 10, 119		1
1384	A unified dynamic model and control synthesis for robotic manipulators with geometric end-effector constraints. **1996**, 10, 203		5
1383	Application of fuzzy on-line self-adaptive controller for a contour tracking robot on unknown contours. **1996**, 82, 17-25		5
1382	Robotic manipulation using high bandwidth force and vision feedback. **1996**, 24, 11-29		22
1381	Camera modelling for visual servo control applications. **1996**, 24, 79-102		13
1380	Damping variation through electrohydraulic servosystem: An application to active impedance control. **1996**, 6, 613-630		3
1379	Adaptive compliant control of robot manipulators. *Control Engineering Practice*, **1996**, 4, 705-712	3.9	26
1378	Stabilizing position/force control of robots interacting with environment by learning connectionist structures. **1996**, 32, 1733-1739		5
1377	An experimental study on improving hybrid position/force control of a robot using time delay control. **1996**, 6, 915-931		23
1376	Adaptive control of single rigid robotic manipulators interacting with dynamic environment An overview. **1996**, 17, 1-30		3
1375	Dynamic simulation and neural network compliance control of an intelligent forging center. **1996**, 17, 81-99		26
1374	Artificial neural network based robot control: An overview. **1996**, 15, 333-365		19

1373	Motion planning and contact control for a tele-assisted hydraulic underwater robot. **1996**, 3, 233-251	8
1372	Robust position control of manipulators based on disturbance observer and inertia identifier in task space.	5
1371	Adaptive fuzzy hybrid force/position control for robot manipulators following contours of an uncertain object.	3
1370	Parallel Force/Position Control of Robot Manipulators. **1996**, 78-89	11
1369	Frequency-shaped explicit output feedback force control for flexible link manipulators.	
1368	.	2
1367	Adaptive position and force control of flexible joint robots.	
1366	Specification of force-controlled actions in the "task frame formalism"-a synthesis. **1996**, 12, 581-589	150
1365	Experiments in adaptive model-based force control. **1996**, 16, 49-57	26
1364	Twin-head six-axis force sensors. **1996**, 12, 146-154	16
1363	New approach to control of robotic manipulators interacting with dynamic environment. **1996**, 14, 31-39	44
1362	Application of hybrid compliance/force control to super long distance teleoperation. **1996**, 11, 199-212	2
1361	Position control and explicit force control of constrained motions of a manipulator for accurate grinding tasks. **1996**, 11, 285-300	5
1360	Fuzzy neural friction compensation method of robot manipulation during position/force control.	15
1359	Variable damping impedance control of a bilateral telerobotic system.	4
1358	Contact force assignment using fuzzy logic.	1
1357	The local force control loop approach in bilateral control of master-slave systems.	3
1356	Monitoring of a pseudo contact point for fine manipulation.	5

1355	Experiments of impedance control on an industrial robot manipulator with joint friction.		10
1354	Force control of a flexible manipulator based on the measurement of link deflections.		1
1353	Force fields in the manipulation of flexible materials.		9
1352	Joint impedance control applied to a biped pneumatic leg.		4
1351	A unified approach to motion and force control of flexible joint robots.		4
1350	On Position/Force Control of Robot Interacting With Dynamic Environment in Cartesian Space. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1996**, 118, 187-192	1.6	5
1349	Coordinated task execution of a human and a mobile manipulator.		14
1348	Potential field representation of environment model and its application to robot's force/position hybrid control.		
1347	Task-oriented force control of parallel link mechanism for assembly of segments of tunnel bolling machine.		
1346	A new way to tackle position/force control for pneumatic robots.		1
1345	Development of a dextrous gripper for nuclear applications.		2
1344	Force Tracking in Impedance Control. **1997**, 16, 97-117		194
1343	Position control and explicit force control of a constrained manipulator.		
1342	The cause of kinematic instability in hybrid position/force control: contact compliance.		3
1341	Impedance control for articulated robot of 6 degree-of-freedom in consideration of critically damped condition with an object dynamics.		3
1340	Robust position, motion-inducing force, and internal force control for multi-robot system.		
1339	Analysis and implementation of a neuromuscular-like control for robotic compliance. *IEEE Transactions on Control Systems Technology*, **1997**, 5, 586-597	4.8	12
1338	A study of flexible setup automation using robot.		

1337 On-the-Edge Finishing of Curved Planar Parts. **1997**, 3, 315-330

1336 Parallel force/position controller with observer for robot manipulators. 2

1335 Dynamic analysis in variable structure position/force hybrid control of manipulators. 3

1334 The Role of Environment Dynamics in Contact Force Control of Manipulation Robots. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1997**, 119, 86-89 1.6 3

1333 Force control of rigid manipulators: a comparative study for non-rigid environments. 2

1332 Composite motion and effort control. **1997**,

1331 A nonlinear controller for position and force control of robotic devices interacting with passive environments.

1330 Force control of robot manipulators with neural networks compensation: a comparative study.

1329 A closed-chain Jacobian-based hybrid control for two cooperating arms with a passive joint: an application to sawing task. 1

1328 Neural network controllers for robot manipulators application of damping neurons. **1997**, 12, 191-208 11

1327 Adaptive control of a constrained robot - ensuring zero tracking and zero force errors. **1997**, 42, 1709-1714 24

1326 Control of redundant robots in presence of external forces.

1325 Virtual model control of a bipedal walking robot. 96

1324 Force control command synthesis for assembly using a discrete event framework. 5

1323 Parallel force/position control with stiffness adaptation. 5

1322 An adaptive learning control method for constrained motion of uncertain robotic systems.

1321 Distributed robotic manipulation: Experiments in minimalism. **1997**, 11-25 9

1320 Experiments in force controlled assembly using a discrete event framework.

1319	Intelligent Position/Force Control of Robot Manipulators Using Fuzzy-Neuro. **1997**, 63, 2052-2060		
1318	Regulation of Force and Position for a Robot Manipulator in Contact with a Compliant Environment. **1997**, 30, 333-338		
1317	Hydrostatic Force Sensor for Robotic Applications. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1997**, 119, 115-119	1.6	2
1316	System Output Coordination in Problems of Path-Planning and Robot Motion Control. **1997**, 30, 555-560		
1315	Variable Structure Position/Force Hybrid Control of Manipulators. **1997**, 30, 337-342		
1314	A Validation Study of a Biologically Realistic Robot Control Structure Through Human Operator. **1997**, 30, 239-244		
1313	Stability Analysis of Force Feedback and Force Control of a Constrained Arm with a Symmetric Rigid Tip Body Considering Bending and Torsional Flexibility. **1997**, 30, 485-490		
1312	Compliant Motion Control of Redundant Manipulators in Constraint Space. **1997**, 30, 631-636		
1311	Hybrid Impedance Control of Robot Manipulators with Neural Networks Compensation. **1997**, 30, 373-378		
1310	Force Control of Redundant Robots. **1997**, 30, 209-214		
1309	Hybrid Position/Force Control, Velocity Projection, and Passivity. **1997**, 30, 325-331		
1308	Passive compliance of flexible link robots. II. Analysis and application.		1
1307	A spatial impedance controller for robotic manipulation. **1997**, 13, 546-556		48
1306	Development and experimental evaluation of a robust contact force control strategy for a 7-DOF redundant manipulator.		3
1305	Achieving impedance objectives in robot teleoperation.		10
1304	Contact control of flexible micro/macro-manipulators.		14
1303	Adaptive model-based hybrid control of geometrically constrained robot arms. **1997**, 13, 105-116		45
1302	Stability analysis in variable structure position/force hybrid control of manipulators.		0

1301	Experimental comparison of hybrid and external control structures for a mobile manipulator.		2
1300	Invariant Hybrid Force/Position Control of a Velocity Controlled Robot with Compliant End Effector Using Modal Decoupling. **1997**, 16, 340-356		21
1299	Hybrid position/force control of a dexterous hand based on fuzzy control strategy.		0
1298	Modeling piezoelectric stack actuators for control of micromanipulation. **1997**, 17, 69-79		426
1297	Intelligent position/force controller for industrial robot manipulators-application of fuzzy neural networks. **1997**, 44, 753-761		51
1296	A comparison between robust and adaptive hybrid position/force control schemes for hydraulic underwater manipulators. **1997**, 19, 107-116		14
1295	Position-based impedance control of an industrial hydraulic manipulator. **1997**, 17, 46-52		62
1294	Shared control of multiple-manipulator, sensor-based telerobotic systems.		9
1293	Mechanical analogies in hybrid position/force control.		5
1292	Toward the implementation of hybrid position/force control in industrial robots. **1997**, 13, 838-845		28
1291	Kinematic analysis and position/force control of the Anthrobot dextrous hand. **1997**, 27, 95-104		32
1290	Co-ordinated control of multiple robotic manipulators handling a common object □theory and experiments. **1997**, 144, 73-86		17
1289	Development of a real-time servo control test bench. **1997**, 40, 242-252		2
1288	Coordinated Manipulation of Objects in a Plane. **1997**, 19, 129-147		31
1287	Robot planning and control. *Robotics and Autonomous Systems*, **1997**, 21, 249-261	3.5	13
1286	Principles for design of position and force controllers for robot manipulators. *Robotics and Autonomous Systems*, **1997**, 21, 263-277	3.5	6
1285	Control of interaction impedance using an electrohydraulic servosystem: an application to robotic deburring. **1997**, 65, 172-178		2
1284	An output feedback parallel force/position regulator for a robot manipulator in contact with a compliant environment. **1997**, 29, 295-300		7

1283	Direct adaptive impedance control including transition phases. **1997**, 33, 643-649	19
1282	A Force-Controlled Clamping Element for intelligent Fixturing. **1997**, 46, 265-268	16
1281	Adaptive hybrid control for visual and force servoing in an unknown environment. **1998**, 5, 39-43	51
1280	Fuzzy-logic-based Reinforcement Learning of Admittance Control for Automated Robotic Manufacturing. **1998**, 11, 7-23	7
1279	Neural control of rhythmic arm movements. **1998**, 11, 1379-1394	176
1278	Dynamic performance of hybrid robot controllers near singularities.	0
1277	Neural network impedance force control of robot manipulator. **1998**, 45, 451-461	102
1276	A neural network-based classification of environment dynamics models for compliant control of manipulation robots. **1998**, 28, 58-69	9
1275	. **1998**, 14, 105-113	34
1274	Force and position tracking: parallel control with stiffness adaptation. **1998**, 18, 27-33	23
1273	Live-constraint-based control for contact transitions. **1998**, 14, 743-754	7
1272	An experimental testbed for position and force control of robotic manipulators.	
1271	Control in robotics: open problems and future directions.	4
1270	Position/force fractional control of mechanical manipulators.	
1269	Integration of real-time planning and control in an unstructured manufacturing workcell. **1998**, 13, 473-492	1
1268	Nonlinear and Adaptive Control of Force and Compliance in Manipulators. **1998**, 17, 467-484	27
1267	Hierarchical fuzzy force control for industrial robots. **1998**, 45, 646-653	27
1266	Force control: A bird's eye view. **1998**, 1-17	29

1265	Decentralized Adaptive and Nonadaptive Position/Force Controllers for Redundant Manipulators in Cooperations. **1998**, 17, 232-247	48
1264	Analysis of nonlinear neural network impedance force control for robot manipulators.	4
1263	A general contact model for dynamically-decoupled force/motion control. **1998**, 128-139	5
1262	Multiple impedance control for object manipulation.	10
1261	Impedance based combination of visual and force control.	39
1260	Adaptive hybrid force/position control of a flexible manipulator for automated deburring with online cutting trajectory modification.	2
1259	A model-based impedance control scheme for high-performance hydraulic joints.	10
1258	Adaptive force and position control of robot manipulator based on hyperstability.	
1257	Force Control of a Single-Link Flexible Arm Using Sliding-Mode Theory. **1998**, 4, 187-200	7
1256	Collision force suppression using a passively movable human-friendly robot. **1998**, 13, 493-511	1
1255	Model adaptive hybrid dynamic control for constrained motion systems. **1998**, 43, 560-564	7
1254	Learning impedance control for robotic manipulators. **1998**, 14, 452-465	86
1253	Design of a Fuzzy Logic Based Robotic Admittance Controller. **1998**, 4, 175-189	5
1252	Rhythmic robot arm control using oscillators.	23
1251	Kinematic stability of hybrid position/force control for robots.	
1250	Nonlinear Stability of Hybrid Control. **1998**, 17, 792-806	2
1249	Force control of redundant manipulators considering order of disturbance observer.	0
1248	Fractional-order hybrid control of robot manipulators.	5

1247	Dynamically shared control in human-robot teams through physical interactions.	6
1246	Rapid online learning of compliant motion for two-arm coordination.	1
1245	Intelligent robotic manipulation with hybrid position/force control in an uncalibrated workspace.	8
1244	Robot manipulator hybrid control for an unknown environment using visco-elastic neural networks.	3
1243	Decoupling control based on virtual mechanisms for telemanipulation.	4
1242	Passivity-based design and experimental validation of adaptive force/position controllers for robot manipulators.	1
1241	A behaviour-based architecture for force control of robot manipulators.	
1240	Development of a Robot Assembly Task Planning System. **1998**, 31, 23-28	
1239	Contact Dynamics and Force Control of Space Robotic Systems. **1998**, 31, 13-18	1
1238	Integrating Robot Task Planning into Off-Line Programming Systems. **1998**, 31, 343-348	
1237	Free and constrained motion teleoperation via naturally-transitioning rate-to-force control.	4
1236	Complementary Sensor Fusion in Robotic Manipulation. **1999**, 147-182	
1235	Collision force suppression by human friendly robots with passively movable base.	1
1234	Stiffness adaptation and force regulation using hybrid system approach for constrained robots.	
1233	Sensorimotor compliant motion from geometric perception.	5
1232	Force-responsive robotic assembly of transmission components.	20
1231	Position/force control for robot manipulators applying robust control algorithms.	
1230	Position-based impedance control using a fuzzy compensator.	5

1229	Trajectory/force control for robotic manipulators using sliding-mode and adaptive control. **1999**,		1
1228	Conditions for Kinematic Stability of Position/Force Control for Robots. **1999**, 18, 242-17-242-19		1
1227	Model-Adaptive Hybrid Dynamic Control for Robotic Assembly Tasks. **1999**, 18, 998-1012		2
1226	Two-stage adaptation of a position/force robot controller application of soft computing techniques.		1
1225	Fuzzy-neuro position/force control of robot manipulators-two-stage adaptation approach.		3
1224	Estimating First-Order Geometric Parameters and Monitoring Contact Transitions during Force-Controlled Compliant Motion. **1999**, 18, 1161-1184		51
1223	Global asymptotic stability of hybrid position/force control applied to compliant unilateral constraints. **1999**, 34, 1009-1021		4
1222	Technical Note Application of position/force control to scale calibration. **1999**, 9, 207-224		2
1221	Robust hybrid position/force control of redundant robots. *Robotics and Autonomous Systems*, **1999**, 27, 111-127	3.5	2
1220	Dynamic modelling of a rigid-flexible manipulator for constrained motion task control. **1999**, 23, 509-525		25
1219	Dynamics of contact tasks in robotics. Part I: general model of robot interacting with environment. **1999**, 34, 923-942		35
1218	Learning Force Control for Position Controlled Robotic Manipulator. **1999**, 48, 1-4		37
1217	Robust force/motion control of constrained robots using neural network. **1999**, 16, 697-714		14
1216	Force Measurement Time-Delays and Contact Instability Phenomenon. **1999**, 5, 279-289		29
1215	Spatio-geometric impedance control of Gough-Stewart platforms. **1999**, 15, 281-288		14
1214	. **1999**, 15, 141-151		9
1213	.		21
1212	Robust hybrid force/position control with experiments on an industrial robot. **1999**,		1

1211	An exponentially stable adaptive control for force and position tracking of robot manipulators. **1999**, 44, 798-802		48
1210	Model-based adaptive hybrid control for manipulators under multiple geometric constraints. *IEEE Transactions on Control Systems Technology*, **1999**, 7, 97-109	4.8	20
1209	Force oscillations in contact motion of industrial robots: an experimental investigation. *IEEE/ASME Transactions on Mechatronics*, **1999**, 4, 86-91	5.5	15
1208	A survey of robot interaction control schemes with experimental comparison. *IEEE/ASME Transactions on Mechatronics*, **1999**, 4, 273-285	5.5	157
1207	Adaptive force/position control of a robot hand.		1
1206	.		1
1205	External force control for underwater vehicle-manipulator systems.		3
1204	Impedance control of underwater vehicle-manipulator systems (UVMS).		
1203	Intelligent compliance control for robot manipulators using adaptive stiffness characteristics.		0
1202	Adaptive control of a robot manipulator in contact with a curved compliant surface. **1999**,		0
1201	Joint Impedance Pneumatic Control for Multilink Systems. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1999**, 121, 293-297	1.6	13
1200	Naturally-Transitioning Rate-to-Force Control in Free and Constrained Motion. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1999**, 121, 425-432	1.6	8
1199	An architecture for robot assembly task planning. **1999**, 32, 79-84		
1198	Fuzzy selection of fuzzy-neuro robot force controllers in an unknown environment.		5
1197	An experiment on profiling task with impedance controlled manipulator using cutter location data.		2
1196	Behavioural Modules in Force Control of Robotic Manipulators. **2000**, 33, 177-182		
1195	Force and Position Control of Robotic Manipulators: An Experimental Approach. **2000**, 33, 27-32		1
1194	Robot Force Control Experiments in Non-Rigid Environments. **2000**, 33, 159-164		

1193	On-line Reconfiguration of Real-Time Robot Motion and Force Control. **2000**, 33, 171-176	
1192	Application of multiple fuzzy-neuro force controllers in an unknown environment using genetic algorithms.	2
1191	Trajectory planning for automated robotic deburring on an unknown contour. **2000**, 40, 957-978	9
1190	Application of self-tuning fuzzy controller for a Cartesian manipulator on unknown contours. **2000**, 40, 943-955	3
1189	Application of a rule self-regulating fuzzy controller for robotic deburring on unknown contours. **2000**, 110, 341-350	10
1188	A new controller adapted to constrained pneumatic multichain structures. **2000**, 36, 1321-1327	4
1187	Application of MRAC theory for adaptive control of a constrained robot manipulator. **2000**, 40, 2083-2097	9
1186	A compliance control strategy for robot manipulators under unknown environment. **2000**, 14, 1081-1088	14
1185	A study on skill extraction in the machine operation.	
1184	Intelligent active force control of a robot arm using fuzzy logic.	4
1183	Gauss' principle and the dynamics of redundant and constrained manipulators.	36
1182	Design and implementation of a robot assisted crucible charging system.	3
1181	Hybrid force/velocity discrete event controller synthesis for assembly tasks with friction.	
1180	NN controller of the constrained robot under unknown constraint.	1
1179	Design and experimental evaluation of a stable transition controller for geometrically constrained robots.	3
1178	Neural network controller for constrained robot manipulators.	2
1177	A unified force control approach to autonomous underwater manipulation.	2
1176	A hybrid intelligent active force controller for robot arms using evolutionary neural networks.	4

1175	Multi-site Internet-based cooperative control of robotic operations.		9
1174	Application of suspension mechanisms for low powered robot tasks. **2000**, 27, 206-216		4
1173	Model-based PID control of constrained robot in a dynamic environment with uncertainty.		
1172	A signal-based approach to localization and navigation of autonomous compliant motion.		
1171	Adaptive Control for Safe and Quality Rebar Fabrication. **2000**, 126, 122-129		15
1170	Human Safety Mechanisms of Human-Friendly Robots: Passive Viscoelastic Trunk and Passively Movable Base. **2000**, 19, 307-335		51
1169	A robust position/force learning controller of manipulators via nonlinear Hinfinity control and neural networks. **2000**, 30, 310-21		23
1168	. *IEEE/ASME Transactions on Mechatronics*, **2000**, 5, 122-131	5.5	23
1167	Two-stage adaptive robot position/force control using fuzzy reasoning and neural networks. **2000**, 14, 153-168		0
1166	Control of contact via tactile sensing. **2000**, 16, 482-495		46
1165	Force tracking in multiple impedance control of space free-flyers.		2
1164	Sensor-based hybrid position/force control of a robot manipulator in an uncalibrated environment. *IEEE Transactions on Control Systems Technology*, **2000**, 8, 635-645	4.8	94
1163	. *IEEE Transactions on Control Systems Technology*, **2000**, 8, 777-786	4.8	18
1162	Robust neural force control scheme under uncertainties in robot dynamics and unknown environment. **2000**, 47, 403-412		67
1161	Control of redundant manipulators considering order of disturbance observer. **2000**, 47, 413-420		99
1160	Position/force control of robot manipulators for geometrically unknown objects using fuzzy neural networks. **2000**, 47, 641-649		65
1159	Force control of robot manipulators.		78
1158	Self-tuning position and force control of an underwater hydraulic manipulator.		4

1157	Experimental studies of neural network impedance force control for robot manipulators.		3
1156	Force Tracking Impedance Control for Robot Manipulators with an Unknown Environment: Theory, Simulation, and Experiment. **2001**, 20, 765-774		47
1155	A stable transition controller for constrained robots. *IEEE/ASME Transactions on Mechatronics*, **2001**, 6, 65-74	5.5	39
1154	The position/force control with self-adjusting select-matrix for robot manipulators.		2
1153	Control of an operator-mobile manipulator coordination system.		
1152	Hamlet: force/position controlled hexapod walker - design and systems.		10
1151	Adaptive force control of position/velocity controlled robots: theory and experiment.		1
1150	A roadmap for autonomous robotic assembly.		10
1149	Tracking control of blind mobile robot using force sensor.		0
1148	Contact dynamics and force control of space manipulator systems. **2001**, 359, 2271-2286		2
1147	Robotic Surface Finishing Processes: Modeling, Control, and Experiments. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2001**, 123, 93-102	1.6	30
1146	Self-Tuning Position and Force Control of an Underwater Hydraulic Manipulator. **2001**, 34, 149-154		1
1145	Fuzzy predictive algorithms applied to real-time force control. *Control Engineering Practice*, **2001**, 9, 411-423	3.3	19
1144	A trivial and efficient learning method for motion and force control. **2001**, 14, 487-496		5
1143	Compliance adjustment of a metal bellows actuator by control law parameters. **2001**, 11, 631-647		4
1142	Position and force control of flexible joint robots during constrained motion tasks. **2001**, 36, 853-871		19
1141	Robot Control Using Disparate Multiple Sensors. **2001**, 20, 364-377		15
1140	Force Control Command Synthesis for Constrained Hybrid Dynamic Systems with Friction. **2001**, 20, 753-764		4

1139	Adaptive control of robotic surface finishing processes. **2001**,		13
1138	Force control of remote maintenance robot for the ITER.		1
1137	.		
1136	Virtual Model Control: An Intuitive Approach for Bipedal Locomotion. **2001**, 20, 129-143		336
1135	Position and force control by reaction compensation.		0
1134	Hybrid force/position control in moving hand coordinate frame.		2
1133	Disturbance rejection analysis of multiple impedance control for space free-flying robots.		7
1132	Force-free control of articulated robot arm considering velocity along assigned locus.		
1131	Adaptive decentralized compliant control of robot manipulators. **2002**,		
1130	Experimental comparative evaluation of compliant control schemes for an anthropomorphic personal robot. **2002**,		2
1129	Adaptive NN impedance control of constrained mechanical systems.		1
1128	Robust finger gaits from closed-loop controllers.		20
1127	Development of mine detection robot COMET-II and COMET-III.		3
1126	Robotic grasping: gripper designs, control methods and grasp configurations a review of research. **2002**, 13, 520-531		17
1125	The Operational Space Formulation implementation to aircraft canopy polishing using a mobile manipulator.		9
1124	HYBRID FORCE/POSITION CONTROL OF REDUNDANT MOBILE MANIPULATORS. **2002**, 35, 383-388		1
1123	Hydraulic Servo System With Mechanically Adjustable Compliance. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2002**, 124, 168-175	1.6	0
1122	ROBUST HYBRID CONTROL OF UNCERTAIN CONSTRAINED MECHANICAL SYSTEMS. **2002**, 35, 37-42		

1121	References. **2002**, 447-473		1
1120	An impedance-compliance control for a cable-actuated robot.		3
1119	Fuzzy impedance control for robots in complex spatial edge following.		1
1118	Compliant control for a cable-actuated anthropomorphic robot arm: an experimental validation of different solutions.		7
1117	A unified geometric approach to modeling and control of constrained mechanical systems. **2002**, 18, 574-587		51
1116	Hybrid force/velocity robot contour tracking: an experimental analysis of friction compensation strategies.		6
1115	. *IEEE Transactions on Control Systems Technology*, **2002**, 10, 355-367	4.8	81
1114	Shared control in hybrid vision/force robotic servoing using the task frame.		6
1113	A rigorous framework for interactive robot control. **2002**, 75, 1486-1503		7
1112	Impedance control of a compression cardiac assist device.		1
1111	Dexterous anthropomorphic robot hand with distributed tactile sensor: Gifu hand II. *IEEE/ASME Transactions on Mechatronics*, **2002**, 7, 296-303	5.5	340
1110	Adaptive force control of position/velocity controlled robots: theory and experiment. **2002**, 18, 121-137		104
1109	Robotic Manipulation of Highly Irregular Shaped Objects: Application to a Robot Crucible Packing System for Semiconductor Manufacture. **2002**, 4, 1-15		6
1108	Bilateral parallel force/position teleoperation control. **2002**, 19, 155-167		80
1107	Interactive force control of an operator-mobile manipulator coordination system. **2002**, 19, 189-198		1
1106	Stability of hybrid position and force control for robotic manipulator with kinematics and dynamics uncertainties. **2003**, 39, 847-855		77
1105	Supervisory control for a telerobotic system: a hybrid control approach. *Control Engineering Practice*, **2003**, 11, 805-817	3.9	14
1104	Humanitarian mine detecting six-legged walking robot and hybrid neuro walking control with position/force control. **2003**, 13, 773-790		41

1103	A hidden Markov model-based assembly contact recognition system. **2003**, 13, 1001-1023		23
1102	An experimental study on compliance control for a redundant personal robot arm. *Robotics and Autonomous Systems*, **2003**, 44, 101-129	3.5	44
1101	Modeling of force sensing and validation of disturbance observer for force control.		14
1100	.		28
1099	Switching force/position fuzzy control of robotic manipulator.		0
1098	A unified adaptive force control of underwater vehicle-manipulator systems (UVMS).		0
1097	Quantitative Safety Guarantees for Physical Human-Robot Interaction. **2003**, 22, 479-504		140
1096	Hybrid neuro-fuzzy control approach of robot manipulators. **2003**,		
1095	Fuzzy logic based control of multiple manipulators in a flexible work cell. **2003**,		
1094	. **2003**, 19, 26-41		24
1093	A new impedance control concept for elastic joint robots.		20
1092	Integrated Vision/Force Robotic Servoing in the Task Frame Formalism. **2003**, 22, 941-954		43
1091	Programing by Demonstration: Coping with Suboptimal Teaching Actions. **2003**, 22, 299-319		37
1090	Analysis and experimental validation of force bandwidth for force control.		22
1089	. **2003**, 19, 876-884		27
1088	Performance analysis of an electrohydraulic impedance controller for robotic interaction control. **2003**, 17, 791-806		1
1087	Remarks on the stability of parallel force/position control. **2003**, 217, 519-524		
1086	Integrated Task Planning and Control for Mobile Manipulators. **2003**, 22, 337-354		66

1085	Position/force control of a manipulator by using an algebraic relation and evaluations by experiments.	5
1084	Automatic determination of finger control modes for graspless manipulation.	3
1083	Contact sensing for parts localization: sensor design and experiments.	
1082	Hybrid force/velocity control of industrial manipulators with elastic transmissions.	2
1081	Force-guided robot in automated assembly of mobile phone. **2003**, 23, 75-86	10
1080	Development and Control of Mine Detection Robot COMET-II and COMET-III. **2003**, 46, 881-890	35
1079	Force estimation and control in robot manipulators. **2003**, 36, 55-60	18
1078	Robotics. **2003**,	2
1077	Dynamic simulation of task constrained of a rigid-flexible manipulator. **2004**, 1, 6	8
1076	Force control for industrial applications using a fuzzy PI controller. **2004**, 24, 60-67	11
1075	. **2004**,	10
1074	Recent progress in the UJI librarian robot.	
1073	High precision contour tracking with a joystick sensor.	
1072	An integrative approach for multi-sensor based robot task programming. **2004**,	1
1071	Hybrid vision-force control for robot with uncertainties. **2004**,	13
1070	Motion planning of robot fingertips for graspless manipulation. **2004**,	13
1069	A roughing/cementing robotic cell for custom made shoe manufacture. **2004**, 17, 645-652	13
1068	Active tracking of unknown surface using force sensing and control technique for robot. **2004**, 112, 313-319	16

1067	Isotropic force control for haptic interfaces. *Control Engineering Practice*, **2004**, 12, 1423-1436	3.9	14
1066	Dynamic force/motion simulation of a rigid-flexible manipulator during task constrained.		7
1065	Fractional-order position/force robot control.		1
1064	Quarry of environmental information based on twin robot system Environment Quarrier.		2
1063	Control of constrained mechanical systems with passive joints.		3
1062	Controlling dynamic contact transition for nonholonomic mobile manipulators.		
1061	Optimal selection of manipulator impedance for contact tasks. **2004**,		5
1060	Feedback-error Learning for Explicit Force Control of a Robot Manipulator Interacting with Unknown Dynamic Environment.		1
1059	Multi-contact compliant motion control for robotic manipulators. **2004**,		2
1058	Sensor-Based Estimation and Control of Forces and Moments in Multiple Cooperative Robots. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2004**, 126, 276-283	1.6	14
1057	Force tracking impedance control of robot manipulators under unknown environment. *IEEE Transactions on Control Systems Technology*, **2004**, 12, 474-483	4.8	250
1056	. **2004**, 20, 82-92		6
1055	Sensor integration in task-level programming and industrial robotic task execution control. **2004**, 31, 284-296		25
1054	Adaptive implicit hybrid force/pose control of industrial manipulators: compliant motion experiments.		15
1053	Implementation and control of a roadway crack tracking mobile robot with force regulation. **2004**,		0
1052	Research on a Novel Parallel Engraving Machine and its Key Technologies. **2004**, 1, 26		1
1051	Robust Hybrid Position/Force Control with Adaptive Scheme. **2004**, 47, 1161-1165		3
1050	Dynamics and control of free-flying robots in space: A survey. **2004**, 37, 621-626		1

1049	EXPERIMENTAL STUDIES OF IMPEDANCE FORCE TRACKING CONTROL OF A CRACK SEALING ROBOT FOR HIGHWAY MAINTENANCE. **2005**, 38, 529-534		
1048	A GAIN SCHEDULING APPROACH FOR HYBRID FORCE/VELOCITY CONTROLLED ROBOT CONTOUR TRACKING. **2005**, 38, 325-330		1
1047	Range of motion in reconstruction situations following corpectomy in the lumbar spine: a question of bone mineral density?. **2005**, 30, E229-35		17
1046	Slip-adaptive walk of quadruped robot. *Robotics and Autonomous Systems*, **2005**, 53, 124-141	3.5	22
1045	A bio-inspired approach for regulating and measuring visco-elastic properties of a robot arm. **2005**, 22, 397-419		12
1044	. **2005**, 12, 53-64		35
1043	Extending an industrial robot controller: implementation and applications of a fast open sensor interface. **2005**, 12, 85-94		79
1042	A rehabilitation robot with force-position hybrid fuzzy controller: hybrid fuzzy control of rehabilitation robot. **2005**, 13, 349-58		109
1041	A new robotic assembly modeling and trajectory planning method using synchronized Petri nets. *International Journal of Advanced Manufacturing Technology*, **2005**, 26, 420-426	3.2	8
1040	Control of spatial motion relative to moving external objects. **2005**, 66, 570-582		0
1039	What Does □ontrol of Robots□nvolve?. **2005**, 7-17		
1038	Constructing Task-Level Assembly Strategies in Robot Programming by Demonstration. **2005**, 24, 1073-1085		8
1037	Neuro-fuzzy control applied to multiple cooperating robots. **2005**, 32, 234-239		6
1036	An analysis of parameter variations of disturbance observer for haptic motion control. **2005**,		5
1035	Collision Avoidance of a Mobile Robot Using Intelligent Hybrid Force Control Technique.		2
1034	Inverse Jacobian based hybrid impedance control of redundant manipulators.		3
1033	A Mechatronic Design for Robotic Deburring. **2005**,		4
1032	A bio-inspired joint controller for the decentral control of a closed kinematic chain consisting of elastic joints.		2

1031	Towards a new concept of robot programming in high speed assembly applications. **2005**,		15
1030	Direct force and position control using kinematics and dynamics of manipulators in constrained motion. **2005**,		2
1029	Explicit lateral force control of an autonomous mobile robot with slip. **2005**,		0
1028	Integration of planning and execution in force controlled compliant motion. **2005**,		12
1027	Collision avoidance of a mobile robot for moving obstacles based on impedance force control algorithm. **2005**,		10
1026	A vision/position/force control approach for performing assembly tasks with a humanoid robot.		2
1025	Multiple Impedance Control for Space Free-Flying Robots. **2005**, 28, 939-947		68
1024	Planning of graspless manipulation by a multifingered robot hand. **2005**, 19, 501-521		22
1023	Movement-flow-based visual servoing and force control fusion for Manipulation Tasks in unstructured environments. **2005**, 35, 4-15		24
1022	Unified force and motion control using an open system real-time architecture on a 7 DOF PA-10 robot.		1
1021	Non-Model-Based Multiple Impedance Control of Cooperating Robotic Manipulators.		
1020	Impedance Control of Space Robots Using Passive Degrees of Freedom in Controller Domain. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2005**, 127, 564-578	1.6	38
1019	Compliance Control for an Anthropomorphic Robot with Elastic Joints: Theory and Experiments. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2005**, 127, 321-328	1.6	67
1018	.		2
1017	A cascaded sliding mode hybrid force/position controller. **2005**,		6
1016	Cable suspended planar robots with redundant cables: controllers with positive tensions. **2005**, 21, 457-465		138
1015	Fuzzy-neuro Position/Force Control of Robot Manipulators with Uncertainties.		
1014	A biologically inspired active compliant joint using local positive velocity feedback (LPVF). **2005**, 35, 1120-30		9

1013	Executing assembly tasks specified by manipulation primitive nets. **2005**, 19, 591-611	51
1012	Localization of curved parts through continual touch. **2005**, 21, 726-733	4
1011	Transpose jacobian based hybrid impedance control of redundant manipulators.	
1010	Planning of graspless manipulation based on rapidly-exploring random trees.	10
1009	Compliant motion using a mobile manipulator: an operational space formulation approach to aircraft canopy polishing. **2005**, 19, 613-634	18
1008	Multi-Link Multi-Contact Force Control for Manipulators.	7
1007	Initial experiments on a leg mechanism with a flexible geared joint and footpad. **2005**, 19, 373-399	9
1006	A novel force tracking control approach to an autonomous unmanned helicopter system. **2005**,	
1005	Cubic-Spline Trajectory Planning of a Constrained Flexible Manipulator.	3
1004	A unified approach for inverse and direct dynamics of constrained multibody systems based on linear projection operator: applications to control and simulation. **2005**, 21, 834-849	95
1003	Robot-assisted catheter insertion using hybrid impedance control.	17
1002	A new motion control hardware architecture with FPGA-based IC design for robotic manipulators.	4
1001	Modal system design of multi-robot systems by interaction mode control.	6
1000	Robust Adaptive Neural Network Control of Uncertain Rheonomically Constrained Manipulators. **2006**,	
999	Robust control of two 5 DOF cooperating robot manipulators.	2
998	On the Position/Force Control of Robot Manipulators with Model Uncertainty and Random Disturbances. **2006**,	0
997	Motion Acquisition and Reproduction of Human Hand by Interaction Mode Control. **2006**,	3
996	. **2006**,	1

995	Multiple Impedance Control of Redundant Manipulators. **2006**,		2
994	Implementation of Industrial Robot Force Control Case Study: High Power Stub Grinding and Deburring. **2006**,		13
993	Friction compensation in hybrid force/velocity control of industrial manipulators. **2006**, 53, 604-613		44
992	. **2006**, 53, 922-928		132
991	Adaptive jacobian motion and force tracking control for constrained robots with uncertainties.		15
990	High Precision Force Control by Multi-Sensor based Disturbance Observer. **2006**,		1
989	Sliding Mode Control Based on Position Control for Contact Motion Applied to Hopping Robot. **2006**,		2
988	Gain Scheduling for Hybrid Force/Velocity Control in Contour Tracking Task. **2006**, 3, 49		13
987	Bibliography. **2006**, 321-333		
986	Impedance Control of Space Robot. **2006**, 26, 316-322		14
985	FRACTIONAL CONTROL OF TWO ARMS WORKING IN COOPERATION. **2006**, 39, 355-360		
984	AN APPROACH TO COMPLIANT MOTION OF AN INDUSTRIAL MANIPULATOR. **2006**, 39, 506-511		3
983	From Unconstrained Motion Control to Constrained Case for Holonomic Mechanical Systems. **2006**,		3
982	A COMPARISON BETWEEN IMPLICIT AND EXPLICIT HYBRID CONTROL FOR CONTOUR TRACKING. **2006**, 39, 248-253		
981	PARALLEL FORCE AND MOTION CONTROL USING ROBUST VELOCITY OBSERVER. **2006**, 39, 289-294		
980	On the use of velocity feedback in hybrid force/velocity control of industrial manipulators. *Control Engineering Practice*, **2006**, 14, 1045-1055	3.9	22
979	Multiple-arm space free-flying robots for manipulating objects with force tracking restrictions. *Robotics and Autonomous Systems*, **2006**, 54, 779-788	3.5	30
978	Optimal design of micro-force sensor for wire bonding with high acceleration and frequent movement. **2006**, 127, 104-118		7

977 Robust coordination control of a pneumatic deburring tool. **2006**, 22, S1-S13 2

976 A dynamics formulation of general constrained robots. **2006**, 16, 37-54 7

975 Intelligent compliant force/motion control of nonholonomic mobile manipulator working on the nonrigid surface. **2006**, 15, 204-216 15

974 Multiple Impedance Control of Space Free-Flying Robots Using Virtual Object Grasp. **2006**, 5

973 Contour tracking of an unknown planar object by regulating force for mobile robot navigation. **2006**, 25, 297-305 4

972 Advanced motion control by multi-sensor based disturbance observer. 3

971 Multiple Impedance control of cooperative manipulators using virtual object grasp. **2006**, 1

970 The Cooperation of Two Manipulators with Fractional Controllers. **2006**,

969 Combined Impedance/Direct Control of Robot Manipulators. **2006**, 1

968 Pneumatic impedance control of a 3-d.o.f. physiotherapy robot. **2006**, 20, 1321-1339 13

967 An iterative learning control algorithm for contour tracking of unknown objects. 1

966 Very low compliance force control on a CNC lathe machine. 0

965 Neural Network Force Control Technique for Four Wheel Driven Snow Blower Robotic Vehicle under Uncertain Environment. **2006**,

964 . **2006**, 3

963 Cooperative object manipulation using Non-Model-Based Multiple Impedance Control. **2006**, 1

962 A Control Architecture for Compliant Execution of Manipulation Tasks. **2006**,

961 Regressor-free adaptive impedance control of flexible-joint robots using FAT. **2006**, 3

960 A quantitative test for the robustness of graspless manipulation. 3

959	Vision-based Control of Constrained Robots using Neural Networks. **2006**,	
958	Skill Acquisition of Human Fingers Based on Interaction Mode Control. **2006**,	
957	Adaptive Vision and Force Tracking Control for Constrained Robots. **2006**,	7
956	Smooth Transition from Motion to Force Control in Robotic Manipulation Using Vision. **2006**,	8
955	A Singular Perturbation Approach to Control of Flexible Arms in Compliant Motion. **2006**, 253-269	
954	Motion Tasks and Force Control for Robot Manipulators on Embedded 2-D Manifolds. **2007**,	3
953	Force Tracking Impedance Control of Robot Manipulators for Environment with Damping. **2007**,	7
952	Constraint-based Task Specification and Estimation for Sensor-Based Robot Systems in the Presence of Geometric Uncertainty. **2007**, 26, 433-455	176
951	Semantics of tasks and motions of robots -multi-mode control as a bridge between tasks and motions-. **2007**,	1
950	Development of a robot control method for curved seal extrusion for high productivity in an advanced Toyota production system. **2007**, 20, 486-496	5
949	A Hybrid Control Strategy for Robust Contact Detection and Force Regulation. **2007**,	11
948	SMC Based Bilateral Control. **2007**,	2
947	Hyperbolic tangent function based force-position compliant controller for robotic devices. **2007**,	1
946	Iterative learning explicit hybrid force/velocity control for contour tracking. **2007**,	1
945	A Composition of Decoupling Motion Controller Based on Momentum and Its Application for Singular Configurations. **2007**,	2
944	Process Control for Robotic Surface Finishing. **2007**,	1
943	Adaptive Vision and Force Tracking Control of Constrained Robots with Structural Uncertainties. **2007**,	4
942	Position/force control of grinding robot by using real-time presumption of constrained condition. **2007**,	1

941	Free-flying robots in space: an overview of dynamics modeling, planning and control. **2007**, 25, 537-547		115
940	Development and Control of Compliant Hybrid Joints for Human-Symbiotic Mobile Manipulators. **2007**, 4, 3		2
939	Application of an active pneumatic actuator to robotic deburring. **2007**, 34, 487-494		3
938	Dexterous Manipulation in Constrained Bilateral Teleoperation Using Controlled Supporting Point. **2007**, 54, 1113-1121		16
937	. *IEEE/ASME Transactions on Mechatronics*, **2007**, 12, 418-429	5.5	215
936	Selecting Impedance Parameters for the Ranger 8-DOF Dexterous Space Manipulator. **2007**,		5
935	Probabilistic Estimation of Whole Body Contacts for Multi-Contact Robot Control. **2007**,		18
934	Synthesis methods and experiment validation of compliant force controller based inner position loop. **2007**,		
933	Robust force control strategy based on the virtual environment concept. **2007**, 21, 485-498		8
932	Dynamic Force Control Having No Singular Point on Momentum Control System. **2007**,		3
931	Fast algebraic impact times estimation for a linear system subject to unilateral constraint. **2007**,		5
930	Non-Model-Based Multiple Impedance Control of Space Free Flying Robots. **2007**,		1
929	Robotic Interaction with Deformable Objects under Vision and Tactile Guidance - a Review. **2007**,		8
928	Experimental study of force control based on intelligent prediction algorithm in open architecture robot system. **2007**,		1
927	Modeling of Force Sensing and Validation of Disturbance Observer for Force Control. **2007**, 54, 530-538		227
926	Modal System Design of Multirobot Systems by Interaction Mode Control. **2007**, 54, 1537-1546		94
925	Acquisition and Analysis of Finger Motions by Skill Preservation System. **2007**, 54, 3353-3361		12
924	An Analysis of Parameter Variations of Disturbance Observer for Motion Control. **2007**, 54, 3413-3421		108

923	Towards multipurpose autonomous manipulation with the UJI service robot. **2007**, 25, 245-256		9
922	SMC framework in motion control systems. **2007**, 21, 731-744		22
921	Modified transpose Jacobian control of robotic systems. **2007**, 43, 1226-1233		46
920	Automated robotic grinding by low-powered manipulator. **2007**, 23, 589-598		6
919	Robotic sanding system for new designed furniture with free-formed surface. **2007**, 23, 371-379		58
918	Fuzzy force control of constrained robot manipulators based on impedance model in an unknown environment. **2007**, 2, 168-174		4
917	Improvement of a delayed velocity reference control (DVRC) for machining operations. **2007**, 47, 496-508		1
916	CAD/CAM-based position/force controller for a mold polishing robot. **2007**, 17, 207-216		82
915	A mechatronic approach for robotic deburring. **2007**, 17, 431-441		21
914	Updating workpiece geometry using robotic sensor information gathered during contact tasks. **2008**, 24, 183-192		
913	Safe physical human robot interaction-past, present and future. **2008**, 22, 469-483		76
912	A force□mpedance controlled industrial robot using an active robotic auxiliary device. **2008**, 24, 299-309		60
911	Coordination control of an active pneumatic deburring tool. **2008**, 24, 462-471		13
910	Integration of planning and execution in force controlled compliant motion. *Robotics and Autonomous Systems*, **2008**, 56, 437-450	3.5	13
909	An impact force compensation algorithm based on a piezo force sensor for wire bonding processes. *Control Engineering Practice*, **2008**, 16, 685-696	3.9	6
908	Modeling and control of automated polishing/deburring process using a dual-purpose compliant toolhead. **2008**, 48, 1454-1463		79
907	Analysis of effects of differential gain on dynamic stability of digital force control. **2008**, 43, 514-520		16
906	A manipulator plays Jenga. **2008**, 15, 79-84		17

905	FORCE/POSITION SLIDING-MODE CONTROL OF A ROBOT MANIPULATOR IN A NON-RIGID ENVIRONMENT. **2008**, 1, 122-127	2
904	Adaptive compliant force□motion control of coordinated non-holonomic mobile manipulators interacting with unknown non-rigid environments. **2008**, 71, 1330-1344	30
903	Force Control. **2008**, 161-185	117
902	Motion for Manipulation Tasks. **2008**, 615-645	22
901	Force control technologies for new robotic applications. **2008**,	19
900	Towards Multidimensionality and Flexibility in FSW using an Industrial Robot System. **2008**, 52, 54-59	1
899	Wideband Force Control by Position-Acceleration Integrated Disturbance Observer. **2008**, 55, 1699-1706	131
898	Manipulation planning with caging grasps. **2008**,	57
897	Fingertip force control with embedded fiber Bragg grating sensors. **2008**,	14
896	Manipulaci□ aut□oma multiprop□sito en el robot de servicios jaume-2. **2008**, 5, 25-37	0
895	Fractional Control of Two Cooperating Manipulators. **2008**,	2
894	On the Elasticity in the Dynamic Decoupling of Hybrid Force/Velocity Control in the Contour Tracking Task. **2008**,	1
893	An analysis of force control based on momentum. **2008**,	2
892	A wheeled-mobile robot with human interaction based on force control. **2008**,	0
891	Multi-sensor integration and sensor fusion in industrial manipulation: Hybrid switched control, trajectory generation, and software development. **2008**,	2
890	Force/Position Regulation for a Robot in Compliant Contact Using Adaptive Surface Slope Identification. **2008**, 53, 2116-2122	7
889	Biological stiffness control strategies for the Anatomically Correct Testbed (ACT) hand. **2008**,	24
888	Robust joint-model-based control for constrained robots. **2008**,	1

887	Compliant motion control for robust robotic surface finishing. **2008**,	13
886	Opening a door with a humanoid robot using multi-sensory tactile feedback. **2008**,	39
885	Robotic machining from programming to process control: a complete solution by force control. **2008**, 35, 400-409	39
884	An approach for force control of redundant robots under unknown environment. **2008**,	
883	Force and velocity observers for the control of cooperative robots1. **2008**, 26, 85-92	7
882	Prototyping artificial jaws for the robotic dental testing simulator. **2008**, 222, 1209-20	4
881	Compliant motion tasks for robot manipulators subject to joint velocity constraints. **2008**,	0
880	A force control assisted robot path generation system. **2008**,	
879	An adaptive impedance force control approach for robotic cell microinjection. **2008**,	3
878	Parallel force and motion control using adaptive observer-controller. **2008**,	
877	Embedded design of position based impedance force control for implementing interaction between a human and a ROBOKER. **2008**,	
876	Force and motion control for cylindrical curved surface wall using a three-link arm. **2008**,	
875	Robot multiple contact control. **2008**, 26, 667-677	34
874	Force/position control self-tuned to unknown surface slopes using motion variables. **2008**, 26, 703-710	6
873	CAD/CAM-based Position/Force Control for a Ball-End Abrasive Tool and Its Application to an Industrial Robot. **2008**, 2, 742-752	2
872	Force Tracking Impedance Control with Variable Target Stiffness. **2008**, 41, 6751-6756	36
871	Adaptive interaction robot control with estimation of contact force. **2008**, 41, 6782-6785	
870	A Composition of Dynamic Force Control System Based on Momentum. **2008**, 128, 694-700	2

869	Oblique coordinate control for advanced motion control - Applied to micro-macro bilateral control -. **2009**,		14
868	Model-reference based wave-variable force control. **2009**,		3
867	Linear quadratic optimal control of contact transition with fingertip. **2009**,		
866	Vision-tactile-force integration and robot physical interaction. **2009**,		27
865	Adaptive control of a robotic system undergoing a non-contact to contact transition with a viscoelastic environment. **2009**,		4
864	Control of tendon-driven robotic mechanisms by non-linear springs with hysteresis characteristics. **2009**,		
863	Task hierarchy for position limitation and bilateral control by oblique coordinate control. **2009**,		4
862	Measurement and control scheme for a container transfer robot in living space. **2009**,		2
861	Open-loop bilateral teleoperation for stable force tracking. **2009**,		1
860	Adaptive Jacobian Force/Position Tracking Control of Robotic Manipulators in Compliant Contact with an Uncertain Surface. **2009**, 23, 165-183		8
859	Stability of haptic obstacle avoidance and force interaction. **2009**,		2
858	Hybrid Adaptive Vision Force Control for Robot Manipulators Interacting with Unknown Surfaces. **2009**, 28, 911-926		19
857	Robot-assisted Active Catheter Insertion: Algorithms and Experiments. **2009**, 28, 1101-1117		52
856	Survey of visual and force/tactile control of robots for physical interaction in Spain. **2009**, 9, 9689-733		15
855	Modelling and control of a human-like arm incorporating muscle models. **2009**, 223, 1569-1577		8
854	Study on System Design and Control Methods of Polishing Robot System. **2009**, 16-19, 1370-1376		
853	Interaction Torque Control by Impedance Control of Space Robots. **2009**, 85, 451-459		5
852	Adaptive Jacobian position/force tracking control of free-flying manipulators. *Robotics and Autonomous Systems*, **2009**, 57, 173-181	3.5	22

851	A desktop NC machine tool with a position/force controller using a fine-velocity pulse converter. **2009**, 19, 671-679		8
850	Dynamic External Force Feedback Loop Control of a Robot Manipulator Using a Neural Compensator－Application to the Trajectory Following in an Unknown Environment. **2009**, 19, 113-126		13
849	Proximodistal gradient in the perception of delayed stiffness. **2009**,		2
848	A Robust Position and Force Control Strategy for 7-DOF Redundant Manipulators. *IEEE/ASME Transactions on Mechatronics*, **2009**, 14, 575-589	5.5	46
847	The separate neural control of hand movements and contact forces. **2009**, 29, 3939-47		48
846	Modeling and control of multi-contact centers of pressure and internal forces in humanoid robots. **2009**,		10
845	The direct teaching and playback method for robotic deburring system using the adaptiveforce-control. **2009**,		3
844	Controlling the motion of robot manipulators on constrained surfaces. **2009**,		1
843	Passive Compliance Control of a Weld Inspection Manipulator for Intersecting Pipes. **2009**, 23, 1579-1599		4
842	Modal transformation for bilateral control and co-operational robot motion - Kinematics and dynamics -. **2009**,		5
841	Hybrid position, posture, force and moment control of robot manipulators. **2009**,		2
840	Exoskeletal Force-Sensing End-Effectors With Embedded Optical Fiber-Bragg-Grating Sensors. **2009**, 25, 1319-1331		68
839	Study on Basic Issues for Interactive Force Telecommunication from Human Sensory Aspect(Mechanical Systems). **2009**, 75, 1000-1008		1
838	Task Programming for Robots Using Multi-mode Control －Preparation of Modes to Generate Motions for Disassembly Task －**2009**, 42, 143-148		1
837	Stability of Robotic Obstacle Avoidance and Force Interaction* *The work was partly supported by the Swedish Research Council under the grants: 2005-4182, 2006-5243.. **2009**, 42, 561-566		
836	Simulation of friction stir welding using industrial robots. **2010**, 37, 36-50		18
835	Design of Redundant Degrees of Freedom in Task Realization of a Robot System with Positioning Errors of Objects. **2010**, 4, 1234-1245		1
834	A framework for compliant physical interaction. **2010**, 28, 89-111		11

833	Cooperative object manipulation with contact impact using multiple impedance control. **2010**, 8, 314-327		22
832	Guidance control of a wheeled mobile robot with human interaction based on force control. **2010**, 8, 361-368		10
831	Transmission control in multilateral system for teletraining. **2010**, 93, 26-34		
830	Multifingered robot hands: Control for grasping and manipulation. **2010**, 34, 199-208		86
829	Multiple impedance control of space free-flying robots via virtual linkages. **2010**, 66, 748-759		25
828	Immersion and invariance-based impedance control for electrohydraulic systems. **2010**, 20, 725-744		15
827	Proximodistal gradient in the perception of delayed stiffness. **2010**, 103, 3017-26		26
826	Quantifying the Usability of a Robot System for Friction Stir Welding. **2010**, 638-642, 1255-1260		
825	Hybrid force/position control applied to automated guiding tasks at the microscale. **2010**,		12
824	On the Force Control of Kinematically Defective Manipulators Interacting With an Unknown Environment. *IEEE Transactions on Control Systems Technology*, **2010**, 18, 307-322	4.8	7
823	Model based deformable object manipulation using linear robust output regulation. **2010**,		2
822	Interaction control of robotic manipulators without force measurement. **2010**,		6
821	. **2010**,		3
820	The adaptive selection matrix: A key component for sensor-based control of robotic manipulators. **2010**,		5
819	Backdrivability analysis of Electro-Hydrostatic Actuator and series dissipative actuation model. **2010**,		25
818	Parallel Stiffness Actuators with Six Degrees of Freedom for Efficient Force/Torque Control Applications. **2010**, 275-291		4
817	Reinterpretation of Force Integral Control considering the control ability of system input. **2010**,		0
816	Impedance model based fuzzy force control for robot manipulator contacting with a constrained surface with uncertain errors. **2010**,		1

815	Application of robotic technology in biomechanics to study joint laxity. **2010**, 34, 399-407		3
814	On Orbit Servicing Flexible Space Robots Dynamics and Control During Capturing Target. **2010**,		
813	Adaptive Control of Pressure Tracking for Polishing Process. **2010**, 132,		13
812	Position and Force Control of a Robot in a Free or Constrained Space. **2010**, 241-278		
811	Unified Impedance and Admittance Control. **2010**,		122
810	Reference compensation technique of neural force tracking impedance control for robot manipulators. **2010**,		4
809	Simultaneous local motion planning and control for cooperative redundant arms. **2010**,		2
808	A vision-based, impedance control strategy for industrial robot manipulators. **2010**,		10
807	Iterative-Learning Hybrid Force/Velocity Control for Contour Tracking. **2010**, 26, 388-393		23
806	Compliant Control of Multicontact and Center-of-Mass Behaviors in Humanoid Robots. **2010**, 26, 483-501		226
805	Contact-state classification in human-demonstrated robot compliant motion tasks using the boosting algorithm. **2010**, 40, 1372-86		10
804	A Serial-Type Dual Actuator Unit With Planetary Gear Train: Basic Design and Applications. *IEEE/ASME Transactions on Mechatronics*, **2010**, 15, 108-116	5.5	56
803	. *IEEE/ASME Transactions on Mechatronics*, **2010**, 15, 291-298	5.5	17
802	Adaptive Vision and Force Tracking Control for Robots With Constraint Uncertainty. *IEEE/ASME Transactions on Mechatronics*, **2010**, 15, 389-399	5.5	66
801	Manipulation Primitives A Universal Interface between Sensor-Based Motion Control and Robot Programming. **2010**, 293-313		22
800	Autonomous door opening and plugging in with a personal robot. **2010**,		83
799	Surface Patch Reconstruction From One-Dimensional Tactile Data. **2010**, 7, 400-407		17
798	Tension control for tendon mechanisms by compensation of nonlinear spring characteristic equation error. **2010**,		7

797	sEMG based fuzzy control strategy with ANFIS path planning for prosthetic hand. **2010**,		2
796	Interaction control for a brake actuated manipulator. **2010**,		
795	Active force control for robotic micro-assembly: Application to guiding tasks. **2010**,		21
794	Development of shear sensing system for a three-finger robot hand. **2011**,		
793	Stiffness ellipse control of tendon mechanisms with nonlinear springs. **2011**,		2
792	Active Tracking Unknown Surface Based on Force Control for Robot. **2011**,		1
791	Force impedance control of a robot manipulator using a Neuro-Fuzzy controller. **2011**,		2
790	Neural Network Control of a Robot Interacting With an Uncertain Viscoelastic Environment. *IEEE Transactions on Control Systems Technology*, **2011**, 19, 947-955	4.8	16
789	Interaction in robotics with a combination of vision, tactile and force sensing. **2011**,		1
788	Handling and grasp control with additional grasping point for dexterous manipulation of cylindrical tool. **2011**,		1
787	PID admittance control for an upper limb exoskeleton. **2011**,		8
786	Impedance-based contact control of a free-flying space robot with respect to coefficient of restitution. **2011**,		14
785	An open source extensible software package to create whole-body compliant skills in personal mobile manipulators. **2011**,		6
784	Precise Position/Force Hybrid Control With Modal Mass Decoupling and Bilateral Communication Between Different Structures. **2011**, 7, 266-276		40
783	On force regulation strategies in predictable environments. **2011**, 2011, 4076-81		10
782	Position/force control optimized by particle swarm intelligence for constrained robotic manipulators. **2011**,		9
781	Active gripping impedance force control with dual fingers hand. **2011**,		2
780	Energy shaping control for robot manipulators in explicit force regulation tasks with elastic environments. **2011**,		8

779	Fingertip force and position control using force sensor and tactile sensor for Universal Robot Hand II. **2011**,	2
778	Regressor Based Robust Control for Collaborative Manipulators Handling a Rigid Object. **2011**, 44, 14681-14686	
777	State Estimation of a Mobile Manipulator via Non-uniformly Sampled Position Measurements. **2011**, 44, 11526-11531	
776	A Dynamic-compensation Approach to Impedance Control of Robot Manipulators. **2011**, 63, 51-73	11
775	Force/position control of parallel robots using exteroceptive pose measurements. **2011**, 46, 195-205	8
774	Haptic-based resistance training machine and its application to biceps exercises. **2011**, 12, 21-30	10
773	Neural network based hybrid force/position control for robot manipulators. **2011**, 12, 419-426	63
772	Space robotics supporting exploration missions: vision, force control and coordination strategy for crew assistants. **2011**, 4, 39-60	8
771	Vision/force control of parallel robots. **2011**, 46, 1376-1395	17
770	Robust impedance control of pressure-sensor free pneumatic servo systems. **2011**,	2
769	Implementation of sEMG-based real-time embedded adaptive finger force control for a prosthetic hand. **2011**,	7
768	Stable force/position control of a robotic endoscope holder for constrained tasks in nasal surgery. **2011**,	3
767	A Car-Seat Example of Automated Anthropomorphic Testing of Fabrics Using Force-Controlled Robot Motions. **2011**, 8, 280-291	2
766	Proportional□derivative impedance control of robot manipulators for interaction tasks. **2011**, 225, 315-329	4
765	Hybrid position, posture, force and moment control with impedance characteristics for robot manipulators. **2011**,	5
764	sEMG based real-time embedded force control strategy for a prosthetic hand prototype. **2011**,	2
763	A multi-sensorial hybrid control for robotic manipulation in human-robot workspaces. **2011**, 11, 9839-62	7
762	Dynamic capture of free-moving objects. **2011**, 225, 1054-1067	0

761 Dynamics Model Abstraction Scheme Using Radial Basis Functions. **2012**, 2012, 1-11

760 Radial Basis Functional Link Network and Hamilton Jacobi Issacs for Force/Position Control in Robotic Manipulation. **2012**, 2012, 1-10 3

759 Force control in a parallel manipulator through virtual foundations. **2012**, 226, 1088-1106 10

758 Quantitative analysis of the force control capability of standard industrial robot axes. **2012**,

757 Library automation using different structures of vision-force robot control and automatic decision system. **2012**, 4

756 Nonlinear damping for improved transient performance in robotics force control. **2012**, 4

755 Sensor fusion for human safety in industrial workcells. **2012**, 29

754 Hybrid Natural Admittance Control for laparoscopic surgery. **2012**, 6

753 Parallel Force-Position control mediated by tactile maps for robot contact tasks. **2012**, 2

752 A versatile biomimetic controller for contact tooling and haptic exploration. **2012**, 31

751 Open sesame! adaptive force/velocity control for opening unknown doors. **2012**,

750 Impedance-based contact control of a free-flying space robot with a compliant wrist for non-cooperative satellite capture. **2012**, 29

749 Research on the Hydraulic Actuator Control of the Quadruped Robot Based Dual-Loop. **2012**, 569, 533-538

748 Relative Contact Dynamics and its Application on Manipulator Contact Stability Problem. **2012**, 1

747 Adaptive Force/Velocity control for opening unknown doors1. **2012**, 45, 753-758 6

746 Kinematics-Based Detection and Localization of Contacts Along Multisegment Continuum Robots. **2012**, 28, 291-302 76

745 Adaptive hybrid position/force control for grinding applications. **2012**, 1

744 Path-Tracking Maneuvers With Industrial Robot Manipulators Using Uncalibrated Vision and Impedance Control. **2012**, 42, 1716-1729 20

743	An adaptable and self-calibrating service robotic scanner for ultrasonic inspection of nuclear nozzle-vessel welds. **2012**,		
742	Continuous shape-grinding experiment based on constraint-combined force / position hybrid control method. **2012**,		1
741	Simulation of force control algorithms for serial robots. **2012**,		2
740	Design and control of multi-degree-of-freedom shroud nozzle hydraulic manipulator in steel manufacturing. **2012**,		1
739	Position feedback in force control of industrial manipulators - An experimental comparison with basic algorithms. **2012**,		9
738	Adaptive impedance control in robotic cell injection system. **2012**,		
737	Time-varying force tracking in impedance control. **2012**,		5
736	Tracking and Understanding Unknown Surface With High Speed by Force Sensing and Control for Robot. **2012**, 12, 2910-2916		12
735	A stiffness-matching based evaluation approach for compliance of mechanical systems in shield tunneling machines. **2012**, 55, 2926-2935		9
734	Stiffness and Impedance Control Using Lyapunov Theory for Robot-Aided Rehabilitation. **2012**, 4, 107-119		45
733	Optimal control of energetically efficient ladder decent motion with internal stress adjustment using key joint method. **2012**,		5
732	A hybrid pose / wrench control framework for quadrotor helicopters. **2012**,		40
731	A framework to describe, analyze and generate interactive motor behaviors. **2012**, 7, e49945		93
730	Analysis of Position/Force Trajectory Tracking Feedback Control of Robot Manipulators under Parameter Estimation Error. **2012**, 48, 303-310		0
729	Hybrid moment/position control of a parallel robot. **2012**, 10, 536-546		1
728	Intelligent active force control of a 3-RRR parallel manipulator incorporating fuzzy resolved acceleration control. **2012**, 36, 2370-2383		41
727	NC polishing of aspheric surfaces under control of constant pressure using a magnetorheological torque servo. *International Journal of Advanced Manufacturing Technology*, **2012**, 58, 1061-1073	3.2	24
726	Pose estimation and machining efficiency of an endoscopic grinding tool. *International Journal of Advanced Manufacturing Technology*, **2013**, 69, 2019-2029	3.2	1

725	Impedance control of robots using voltage control strategy. **2013**, 74, 277-286		32
724	Automated Guiding Task of a Flexible Micropart Using a Two-Sensing-Finger Microgripper. **2013**, 10, 515-524		27
723	Squeezed screw trajectories for smooth regrasping movements of robot fingers. **2013**, 35, 83-92		5
722	Stability analysis of robust adaptive hybrid position/force controller for robot manipulators using neural network with uncertainties. **2013**, 22, 1745-1755		29
721	Adaptive Control of Manipulators Forming Closed Kinematic Chain With Inaccurate Kinematic Model. *IEEE/ASME Transactions on Mechatronics*, **2013**, 18, 1544-1554	5.5	35
720	Rehabilitation robotics and serious games: An initial architecture for simultaneous players. **2013**,		6
719	On force control for assembly and deburring of castings. **2013**, 7, 351-360		12
718	In vitro spine testing using a robot-based testing system: comparison of displacement control and "hybrid control". **2013**, 46, 1663-9		21
717	Continuous shape-grinding experiment based on model-independent force/position hybrid control method with on-line spline approximation. **2013**, 18, 219-227		2
716	Velocity and Force Observers for the Control of Robot Manipulators. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2013**, 135,	1.6	2
715	Neural PID admittance control of a robot. **2013**,		
714	Force controlled contour following on unknown objects with an industrial robot. **2013**,		7
713	A motion control method of dual arm robot based on environmental modes. **2013**,		
712	Admittance control scheme for implementing model-based assistance-as-needed on a robot. **2013**, 2013, 870-3		14
711	Model-based telerobotic control with virtual fixtures for satellite servicing tasks. **2013**,		21
710	External force estimation using joint torque sensors and its application to impedance control of a robot manipulator. **2013**,		9
709	An impedance force control approach to a quad-rotor System. **2013**,		1
708	Research on Robot Manipulator Servo Control Based on Force and Vision Sensing. **2013**,		0

707	Risk-sensitive interaction control in uncertain manipulation tasks. **2013**,	9
706	Adaptive sliding mode control of switched constrained robotic manipulators. **2013**,	4
705	Improvement of dynamic characteristics during transient response of force-sensorless grinding robot by force/position control. **2013**,	0
704	Robust globally exponentially stable control for mechanical systems in free/constrained-motion tasks. **2013**,	5
703	. **2013**,	
702	A robust manipulation strategy based on impedance control parameters changes and smooth trajectories. **2013**,	1
701	Experimental investigation on adaptive robust controller designs applied to constrained manipulators. **2013**, 13, 5181-204	1
700	Embedded Force Control Gripper for Frangible Fruit Robotic Manipulation. **2013**, 284-287, 1841-1845	
699	Intelligent robotic impedance control using embedded system structure. **2013**, 35, 561-573	3
698	Three-dimensional impact: energy-based modeling of tangential compliance. **2013**, 32, 56-83	16
697	3D robot sander for artistically designed furniture. **2013**, 91-225	
696	3D machining system for artistic wooden paint rollers. **2013**, 113-225	
695	Hybrid Force-Position Control Three Fingers End Effector. **2013**, 346, 75-82	
694	Velocity-based discrete-time control system with intelligent control concepts for openarchitecture industrial robots. **2013**, 1-225	
693	Reaching in clutter with whole-arm tactile sensing. **2013**, 32, 458-482	68
692	Compliance force control for Polish cardiosurgical manipulator RobIn Heart. **2013**,	2
691	Vision based compliant motion control for part assembly. **2013**,	4
690	CAM system for articulated-type industrial robot. **2013**, 65-225	

689 Force and trajectory control of industrial robots in stiff contact. **2013**, 19

688 Intelligent and environment-independent Peg-In-Hole search strategies. **2013**, 12

687 Stable robust adaptive control of robotic manipulators with switched constraints. **2013**, 1

686 A practical approach to generalized hierarchical task specification for indirect force controlled robots. **2013**, 5

685 A Cooperatively Controlled Robot for Ultrasound Monitoring of Radiation Therapy. **2013**, 2013, 3071-3076 18

684 Encyclopedia of Systems and Control. **2013**, 1-10

683 Time-varying force tracking in impedance control a case study for automatic cell manipulation. **2013**, 1

682 Lyapunov-stable position/force control based on dual nature in constraint motion. **2013**, 0

681 Deformation-tracking impedance control in interaction with uncertain environments. **2013**, 28

680 Polishing robot for pet bottle blow molds. **2013**, 141-225 1

679 Desktop orthogonal-type robot for LED lens cavities. **2013**, 163-225

678 Conclusion. **2013**, 213-225

677 References. **2013**, 215-225

676 Preliminary simulation of intelligent force control. **2013**, 35-225

675 Capuchin: A Free-Climbing Robot. **2013**, 10, 194 9

674 Robot Force/Torque Control in Assembly Tasks. **2013**, 46, 796-801 0

673 Adaptive impedance control of a cleaning unit for a novel wall-climbing mobile robotic platform (ROPE RIDE). **2014**, 5

672 Learning reactive robot behavior for autonomous valve turning. **2014**, 4

671	Improvement of Accuracy to Grind by Changing Position Control Gain for Shape-Grinding. **2014**, 555, 186-191	0
670	Robotic Impedance Control with Fuzzy Sliding Model Control Strategy. **2014**, 598, 605-609	
669	A velocity-based impedance control system for a low impact docking mechanism (LIDM). **2014**, 14, 22998-30167	
668	Using an observer in force control between planar robot and environment. **2014**,	
667	Automation of precision finishing. **2014**,	1
666	Hybrid control of master-slave velocity control and admittance control for safe remote surgery. **2014**,	1
665	Upper-limb rehabilitation robot for brain-injured patients. **2014**,	
664	Impedance control of the 3RPS parallel manipulator. **2014**,	2
663	Finite-time adaptive force control for rheonomically constrained manipulators. **2014**,	
662	Force tracking impedance control with unknown environment at the microscale. **2014**,	13
661	Enhancing control robustness of a 6 DOF parallel testing machine. **2014**,	
660	Neural-network-based robot time-varying force control with uncertain manipulator–environment system. **2014**, 36, 999-1009	13
659	Fuzzy neural network-based adaptive impedance force control design of robot manipulator under unknown environment. **2014**,	4
658	. **2014**,	
657	Absolutely stable model-based 2-port force controller for telerobotic applications. **2014**, 33, 847-865	2
656	An autonomous manipulation system based on force control and optimization. **2014**, 36, 11-30	48
655	Motion Expression by Elemental Separation of Haptic Information. **2014**, 61, 6192-6201	13
654	Force-based flexible path plans for robotic electrode insertion. **2014**,	10

653 Improving the transient performance in robotics force control using nonlinear damping. **2014**, 6

652 Verification of compliance control for a soft robot. **2014**,

651 Decoupling Strategy for Position and Force Control Based on Modal Space Disturbance Observer. **2014**, 61, 1022-1032 46

650 Learning compliant manipulation through kinesthetic and tactile human-robot interaction. **2014**, 7, 367-80 90

649 Strategies and models for cutting satellite insulation in telerobotic servicing missions. **2014**, 5

648 An Impedance Force Control Approach to a Quad-Rotor System Based on an Acceleration-Based Disturbance Observer. **2014**, 73, 175-185 12

647 Adaptive Energy-Bounding Approach for Robustly Stable Interaction Control of Impedance-Controlled Industrial Robot With Uncertain Environments. *IEEE/ASME Transactions on Mechatronics*, **2014**, 19, 1195-1205 5.5 20

646 Energy Shaping Methods for Asymptotic Force Regulation of Compliant Mechanical Systems. *IEEE Transactions on Control Systems Technology*, **2014**, 22, 2376-2383 4.8 8

645 Force control for automatic cashew shelling considering size variance. **2014**, 8, JAMDSM0018-JAMDSM0018 2

644 A Novel Hybrid Safety-Control Strategy for a Manipulator. **2014**, 11, 58 5

643 An adaptive compliance position control based on EKF for series elastic actuation. **2014**,

642 . **2014**, 0

641 Manual guidance for industrial robot programming. **2015**, 42, 457-465 42

640 Robotic polishing of pilger-die. **2015**,

639 System identification using in situ experimental data for the development of an hexapod surfing simulator. **2015**,

638 Learning movement primitives for force interaction tasks. **2015**, 17

637 Low cost impedance controller for robotic gripper drive with DC motor. **2015**,

636 Virtual reality for improving safety and collaborative control of industrial robots. **2015**, 6

635	On Stiffness Regulators with Dissipative Injection for Robot Manipulators. **2015**, 12, 65		4
634	Experimental evaluation of force control for virtual-fixture-assisted teleoperation for on-orbit manipulation of satellite thermal blanket insulation. **2015**,		12
633	On Synergistic Integration of Adaptive Dithering Based Internal Model Control for Hysteresis Compensation in Piezoactuated Nanopositioner. **2015**, 2015, 1-19		3
632	Learning to push and learning to move: the adaptive control of contact forces. **2015**, 9, 118		12
631	On Explicit Force Regulation with Active Velocity Damping for Robot Manipulators. **2015**, 56, 478-490		7
630	Hybrid Position/Force Control of a Cable-Driven Parallel Robot with Experimental Evaluation. **2015**, 553-561		1
629	Multi-task control of multi-contact manipulators during accidental interactions with robot body. **2015**,		1
628	An impedance control modification guaranteeing compliance strictly within preselected spatial limits. **2015**,		2
627	Adaptive position/force control for robot manipulators in contact with a rigid surface with unknown parameters. **2015**,		4
626	Model-Free Robust Adaptive Control for flexible rubber objects manipulation. **2015**,		1
625	Unified passivity-based Cartesian force/impedance control for rigid and flexible joint robots via task-energy tanks. **2015**,		76
624	Passivity-Based Tracking Controllers for Mechanical Systems with Active Disturbance Rejection. **2015**, 48, 129-134		2
623	. **2015**,		13
622	Projected inverse dynamics control and optimal control for robots in contact with the environment: A comparison. **2015**,		4
621	Passive Alignment Principle for Robotic Assembly Between a Ring and a Shaft With Extremely Narrow Clearance. *IEEE/ASME Transactions on Mechatronics*, **2015**, 1-1	5.5	7
620	Position-force control of nonholonomic mobile manipulator with simple holonomic constraint. **2015**,		
619	Human-directed robot motion/force control for contact tasks in unstructured environments. **2015**,		3
618	A new adaptive fuzzy neural force controller for robots manipulator interacting with environments. **2015**,		

617	Adaptive position/force control for robot manipulators in contact with a rigid surface with uncertain parameters. **2015**, 22, 1-12		33
616	A Hybrid System Framework for Unified Impedance and Admittance Control. **2015**, 78, 359-375		48
615	Design of fuzzy logic controller of industrial robot for roughing the uppers of fashion shoes. *International Journal of Advanced Manufacturing Technology*, **2015**, 77, 939-953	3.2	10
614	Adaptive hybrid force/position control of robot manipulators using an adaptive force estimator in the presence of parametric uncertainty. **2015**, 29, 209-223		20
613	Rubbing motion reproduction method in work space by considering summation of contact force. **2015**,		0
612	Tactile sensing in dexterous robot hands □Review. *Robotics and Autonomous Systems*, **2015**, 74, 195-220	3.5	372
611	Multi-scale assembly with robot teams. **2015**, 34, 1645-1659		18
610	Energetically Efficient Ladder Descent Motion With Internal Stress and Body Motion Optimized for a Multilocomotion Robot. **2015**, 62, 4972-4984		3
609	Impedance shaping controller for robotic applications involving interacting compliant environments and compliant robot bases. **2015**,		6
608	Design and Calibration of a Six-axis Force/torque Sensor with Large Measurement Range Used for the Space Manipulator. **2015**, 99, 1164-1170		25
607	Adaptive sliding mode fuzzy control for unknown robots with arbitrarily-switched constraints. **2015**, 30, 174-186		12
606	Friction Compensation of Geared Actuators With High Presliding Stiffness. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2015**, 137,	1.6	3
605	Adaptive Jacobian force/position tracking for space free-flying robots with prescribed transient performance. *Robotics and Autonomous Systems*, **2015**, 72, 235-247	3.5	9
604	Virtual performance evaluation of an industrial SCARA robot prior to real-world task. **2015**, 21, 2605-2609		4
603	Force control for position interface industrial manipulator working in unknown environment. **2015**, 21, 2557-2563		1
602	A unified multimodal control framework for human□obot interaction. *Robotics and Autonomous Systems*, **2015**, 70, 106-115	3.5	30
601	Switched position-force tracking control of a manipulator interacting with a stiff environment. **2015**,		3
600	Dynamic Control of a Walking Robot Using the Versatile Intelligent Portable Robot Platform. **2015**,		

599	Stability-Guaranteed Force-Sensorless Contact Force/Motion Control of Heavy-Duty Hydraulic Manipulators. **2015**, 31, 918-935		65
598	Kinematics for combined quasi-static force and motion control in multi-limbed robots. **2015**,		1
597	Hybrid impedance control of 7-DOF redundant manipulator with dual compliant surface. **2015**,		4
596	Design of single leg foot force controller for hydraulic actuated quadruped robot based on ADRC. **2015**,		0
595	Adaptation of manipulation skills in physical contact with the environment to reference force profiles. **2015**, 39, 199-217		69
594	Real-time embedded frame work for sEMG skeletal muscle force estimation and LQG control algorithms for smart upper extremity prostheses. **2015**, 46, 67-81		11
593	Towards the creation of tactile maps for robots and their use in robot contact motion control. *Robotics and Autonomous Systems*, **2015**, 63, 293-308	3.5	30
592	. *IEEE/ASME Transactions on Mechatronics*, **2016**, 21, 2272-2283	5.5	16
591	Task frame estimation during model-based teleoperation for satellite servicing. **2016**,		5
590	The improvement method of Three-dimensional Robot engraving. **2016**,		
589	Estimation of individual force at three contact points on an end-effector by a six-axis force/torque sensor. **2016**,		
588	Automated robotic microassembly of flexible optical components. **2016**,		5
587	Nested compliant admittance control for robotic mechanical assembly of misaligned and tightly toleranced parts. **2016**,		8
586	Hybrid force/velocity control for physical human-robot collaboration tasks. **2016**,		10
585	Position-force combination control with passive flexibility for versatile in-hand manipulation based on posture interpolation. **2016**,		4
584	Autonomous alignment of peg and hole by force/torque measurement for robotic assembly. **2016**,		26
583	Unified impedance and hybrid force-position controller with kinestatic filtering. **2016**,		3
582	Unknown constrained mechanisms operation based on dynamic interactive control. **2016**, 1, 259-271		8

581	Robotic Time-Varying Force Tracking in Position-Based Impedance Control. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2016**, 138,	1.6	7
580	. **2016**,		4
579	Hybrid position/force control of 6-dof hydraulic parallel manipulator using force and vision. **2016**, 43, 274-283		15
578	Hybrid Impedance/Position Control of a Free-Flying Space Robot for Detumbling a Noncooperative Satellite. **2016**, 49, 230-235		16
577	An interaction controller formulation to systematically avoid force overshoots through impedance shaping method with compliant robot base. **2016**, 39, 42-53		10
576	Motion for Manipulation Tasks. **2016**, 897-930		4
575	Force Control. **2016**, 195-220		25
574	Attitude regulation of a free-flying space robot during contact operations. **2016**,		2
573	Coupled systems analyses for high-performance robust force control of wearable robots. **2016**,		1
572	Hybrid force/position control of industrial robotic manipulator based on Kalman filter. **2016**,		2
571	Adaptive human-inspired compliant contact primitives to perform surfaceSurface contact under uncertainty. **2016**, 35, 1651-1675		14
570	A review on the evolvement trend of robotic interaction control. **2016**, 43, 535-551		9
569	Manipulation and Control. **2016**, 255-320		
568	. **2016**,		
567	Adaptive Impedance Controller for a Robot Astronaut to Climb Stably in a Space Station. **2016**, 13, 81		4
566	Adaptive Torque and Position Control for a Legged Robot Based on a Series Elastic Actuator. **2016**, 13, 26		10
565	A fast robot deployment strategy for successful snap assembly. **2016**,		3
564	Exploiting impedance shaping approaches to overcome force overshoots in delicate interaction tasks. **2016**, 13, 172988141666277		15

563	Force tracking impedance control of robot-tissue interaction with a hunt-crosseley model. **2016**,		1
562	Robot impedance control and passivity analysis with inner torque and velocity feedback loops. **2016**, 14, 97-112		43
561	A random forest application to contact-state classification for robot programming by human demonstration. **2016**, 32, 209-227		2
560	Guaranteeing stable tracking of hybrid position force trajectories for a robot manipulator interacting with a stiff environment. **2016**, 63, 235-247		32
559	Robust adaptive position and force controller design of robot manipulator using fuzzy neural networks. **2016**, 85, 343-354		14
558	An Impedance-Based Force Control Scheme to a Plate-to-Plate Nanoimprinter. **2016**, 15, 328-336		7
557	Model-Less Hybrid Position/Force Control: A Minimalist Approach for Continuum Manipulators in Unknown, Constrained Environments. *IEEE Robotics and Automation Letters*, **2016**, 1, 844-851	4.2	68
556	An Adaptive Control Approach for Opening Doors and Drawers Under Uncertainties. **2016**, 32, 161-175		17
555	Human-Guided Robotic Comanipulation: Two Illustrative Scenarios. *IEEE Transactions on Control Systems Technology*, **2016**, 24, 1751-1763	4.8	14
554	A Review of Algorithms for Compliant Control of Stiff and Fixed-Compliance Robots. *IEEE/ASME Transactions on Mechatronics*, **2016**, 21, 613-624	5.5	129
553	Hybrid motion/force control of multi-backbone continuum robots. **2016**, 35, 422-434		78
552	Improving manufacturing of aeronautical parts with an enhanced industrial Robotised Fibre Placement Cell using an external force-vision scheme. **2016**, 10, 15-35		4
551	Development of a control algorithm for the ultrasound scanning robot (NCCUSR) using ultrasound image and force feedback. **2017**, 13, e1756		10
550	Bond Graph Modelling and Control of Hyper-Redundant Miniature Robot for In-Vivo Biopsy. **2017**, 451-495		1
549	Industrial compliant robot bases in interaction tasks: a force tracking algorithm with coupled dynamics compensation. **2017**, 35, 1732-1746		4
548	Autonomous Control of Continuum Robot Manipulators for Complex Cardiac Ablation Tasks. **2017**, 02, 1750002		18
547	Adjoint-Based Optimization Procedure for Active Vibration Control of Nonlinear Mechanical Systems. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2017**, 139,	1.6	31
546	Hybrid impedance control of robotic manipulator using adaptive backstepping sliding mode controller with PID sliding surface. **2017**,		4

545	A Survey on Control of Hydraulic Robotic Manipulators With Projection to Future Trends. *IEEE/ASME Transactions on Mechatronics*, **2017**, 22, 669-680	5.5	105
544	A Comprehensive Survey on Microgrippers Design: Operational Strategy. **2017**, 139,		49
543	Versatile Interaction Control and Haptic Identification in Humans and Robots. **2017**, 187-206		5
542	Contact force control of dual-rotor helicopter with protect frame. **2017**,		0
541	CONTACT FORCE PROBLEM IN THE REHABILITATION ROBOT CONTROL DESIGN. **2017**, 193-204		1
540	Control of nonlinear vibrations using the adjoint method. **2017**, 52, 2503-2526		30
539	Adaptive HumanRobot Interaction Control for Robots Driven by Series Elastic Actuators. **2017**, 33, 169-182		97
538	Advanced patient transfer assist device with intuitive interaction control. **2017**, 1-11		1
537	Hybrid motion/force control: a review. **2017**, 31, 1102-1113		20
536	Grasp and dexterous manipulation of multi-fingered robotic hands: a review from a control view point. **2017**, 31, 1030-1050		45
535	A combined impedance-PD approach for controlling a dual-arm space manipulator in the capture of a non-cooperative target. **2017**, 139, 243-253		31
534	Distributed cooperative object parameter estimation and manipulation without explicit communication. **2017**,		4
533	Intelligent robotic gripper with adaptive grasping force. **2017**, 15, 2272-2282		11
532	Optimal impedance control for an elbow rehabilitation robot. **2017**,		1
531	Adaptive Impedance Force Controller Design for Robot Manipulator including Actuator Dynamics. **2017**, 19, 1739-1749		7
530	Peg-In-Hole search using convex optimization techniques. **2017**, 44, 618-628		11
529	The effects of wrist motion and hand orientation on muscle forces: A physiologic wrist simulator study. **2017**, 60, 232-237		12
528	Multilayered Center-of-Pressure Sensors for Robot Fingertips and Adaptive Feedback Control. *IEEE Robotics and Automation Letters*, **2017**, 2, 2180-2187	4.2	7

527	Stability-Guaranteed Impedance Control of Hydraulic Robotic Manipulators. *IEEE/ASME Transactions on Mechatronics*, **2017**, 22, 601-612	5.5	58
526	Controller□observer design and dynamic parameter identification for model-based control of an electromechanical lower-limb rehabilitation system. **2017**, 90, 702-714		6
525	. **2017**,		
524	. **2017**,		1
523	Force regulation for pick-and-place units by use of adaptive impedance control. **2017**,		
522	Variable stiffness force tracking impedance control using differential-less method. **2017**,		
521	Force Feedback and Path Following using Predictive Control: Concept and Application to a Lightweight Robot. **2017**, 50, 9827-9832		8
520	On Prescribed Contact Establishment * *This work is funded by the EU Horizon 2020 research and innovation programme under grant agreement No 644938, project SARAFun.The authors are with the Center for Research and Technology Hellas (CERTH), 57001 Thessaloniki, Greece and with the Aristotle University of Thessaloniki, Dept. of Electrical and Computer Engineering, 54124, Thessaloniki, Greece. **2017**, 50, 4831-4836		1
519	Sliding mode hybrid impedance control of manipulators for complex interaction tasks. **2017**,		
518	Fast hybrid position / force control of a parallel kinematic load simulator for 6-DOF Hardware-in-the-Loop axle tests. **2017**,		1
517	Quadratically Constrained Quadratic-Programming Based Control of Legged Robots Subject to Nonlinear Friction Cone and Switching Constraints. *IEEE/ASME Transactions on Mechatronics*, **2017**, 22, 2469-2479	5.5	9
516	Adaptive control of constrained robot via factorization of the manipulator mass matrix. **2017**,		0
515	A smooth position-force controller for asbestos removal manipulator. **2017**,		2
514	Force tracking impedance control with moving target. **2017**,		3
513	Forward Dynamics Compliance Control (FDCC): A new approach to cartesian compliance for robotic manipulators. **2017**,		14
512	An online interactive method for guided calibration of multi-dimensional force/torque transducers. **2017**,		3
511	Position/force control of a holonomic-constrained mobile manipulator based on active disturbance rejection control. **2017**,		
510	Realization of turning a screw crank with less control inputs by using redundant degrees of freedom of a manipulator. **2017**,		

509 Robotics in Lower-Limb Rehabilitation after Stroke. **2017**, 2017, 3731802 43

508 Admittance control of a 3-DOF cable-driven rehabilitation robot for upper-limb in three dimensional workspace. **2017**, 3

507 Variable compliance control for transfer support robot. **2017**,

506 An innovative bio-robot imitating the cervical spine behaviors during the Rotation-Traction manipulation. **2017**,

505 The application of impedance control in rotation-traction manipulation bionic robot. **2017**,

504 Designing of a kind of Impedance Controller for Industrial Robots to Assemble Satellites. **2017**,

503 Improving force tracking control performance in cooperative robots. **2017**, 14, 172988141770896 4

502 A Force-Sensing System on Legs for Biomimetic Hexapod Robots Interacting with Unstructured Terrain. **2017**, 17, 12

501 A two stage approach for distributed cooperative manipulation of an unknown object without explicit communication and unknown number of robots. *Robotics and Autonomous Systems*, **2018**, 103, 122-133 3.5 14

500 Impedance Control in the Rehabilitation Robotics. **2018**, 1007-1025

499 Hierarchical Force and Positioning Task Specification for Indirect Force Controlled Robots. **2018**, 34, 280-286 11

498 Online Robot Reference Trajectory Adaptation for Haptic Identification of Unknown Force Field. **2018**, 16, 318-326 1

497 Contact Force Control on Soft Membrane for an Ear Surgical Device. **2018**, 65, 9593-9603 19

496 Control of UVMSs. **2018**, 175-329

495 Contact Force Estimation for Robot Manipulator Using Semiparametric Model and Disturbance Kalman Filter. **2018**, 65, 3365-3375 39

494 Development of an intelligent transformer insertion system using a robot arm. **2018**, 51, 209-221 7

493 Adaptive variable impedance control for dynamic contact force tracking in uncertain environment. *Robotics and Autonomous Systems*, **2018**, 102, 54-65 3.5 91

492 Design of Intelligent Hybrid Force and Position Control of Robot Manipulator. **2018**, 125, 42-49 10

491	Application of hybrid force/position control on parallel machine for mechanical test. **2018**, 49, 168-176		11
490	Direct teaching of industrial manipulators using current sensors. **2018**, 38, 216-225		3
489	. **2018**, 54, 1253-1264		5
488	Prescribed contact establishment of a robot with a planar surface under position and stiffness uncertainties. *Robotics and Autonomous Systems*, **2018**, 104, 99-108	3.5	10
487	Toward Robotic Manipulation. **2018**, 1, 1-28		33
486	Neural-network-based robust hybrid force/position controller for a constrained robot manipulator with uncertainties. **2018**, 40, 1625-1636		8
485	Robust impedance control of robot manipulators using differential equations as universal approximator. **2018**, 91, 2170-2186		18
484	Introducing validity into self-organizing fuzzy neural network applied to impedance force control. **2018**, 337, 113-127		12
483	Intelligent real-time pressure tracking system using a novel hybrid control scheme. **2018**, 40, 3744-3759		7
482	Observer-based nonlinear control strategies for Hardware-in-the-Loop simulations of multiaxial suspension test rigs. **2018**, 50, 212-224		12
481	High-accuracy robotized industrial assembly task control schema with force overshoots avoidance. *Control Engineering Practice*, **2018**, 71, 142-153	3.9	33
480	Adaptive Hybrid System Framework for Unified Impedance and Admittance Control. **2018**, 91, 569-581		4
479	Performance Analysis and Gains Tuning Procedure for a Controlled Space Manipulator Used for Non-cooperative Target Capture Operations. **2018**, 97, 3-12		0
478	Projected Force-Admittance Control for Compliant Bimanual Tasks. **2018**,		2
477	A Robust Adaptive Impedance Control of Robots. **2018**,		3
476	Controller Design of Indirect Force Control System with Velocity-Saturating Closed Loop Ultrasonic Motor Velocity Control System in Inner Loop. **2018**,		
475	Design and Experiments of a Compliant Adaptive Grasper Based on Fish Fin Structure. **2018**,		2
474	A Force Controlled Under Actuated Robotic Hand with Mechanical Intelligence and Proprioceptive Compliant Actuation. **2018**,		1

473	Dynamic trajectory-tracking control method of robotic transcranial magnetic stimulation with end-effector gravity compensation based on force sensors. **2018**, 45, 722-731	3
472	Hybrid control combined with a voluntary biosignal to control a prosthetic hand. **2018**, 5, 4	3
471	A Novel End-effector for Robotic Compliant Polishing. **2018**,	3
470	Robust Motion Modification for Robot Manipulators in Constrained Environments. **2018**,	
469	A Hybrid Control Algorithm for Object Grasping Using Multiple Agents. **2018**,	1
468	Passivity-Based Active Disturbance Rejection Control for Position/Force Control of a Holonomic-Constrained Mobile Manipulator. **2018**,	0
467	Adaptive unified Impedance and Admittance control using online environment estimation. **2018**,	2
466	Intelligence evolution for service robot: An ADRC perspective. **2018**, 16, 324-335	10
465	Disturbance Observer Based Speed Control of a Variable Displacement Pump-Driven-Motor System with Impedance Torque Regulation. **2018**,	
464	Fundamentals of Robot Dynamics and Control. **2018**, 9-43	
463	Grounding Verbs for Tool-Dependent, Sensor-Based Robot Tasks. **2018**,	3
462	Dynamic-Growing Fuzzy-Neural Acceleration-Based Impedance Controller for a Lower Limb Rehabilitation Robot. **2018**,	
461	Force tracking impedance control with unknown environment via an iterative learning algorithm. **2018**,	2
460	Stable PD position/force control in bilateral teleoperation. **2018**,	
459	Impedance Control of a DC Servo Motor. **2018**,	
458	An estimation method of end-point impedance based on bilateral control system. **2018**, 32, 1151-1167	0
457	Contact Force Control of Quadrotor Based on Rotor Angular Acceleration Control. **2018**,	
456	Admittance Control of Manipulators in Unknown Environment. **2018**,	

455	Comparative Study of Soft Motion for Motion Copying System with Environmental Variations. **2018**,	2
454	Compliant Manipulation of Free-Floating Objects. **2018**,	1
453	Design and control of an end-effector for industrial finishing applications. **2018**, 53, 240-253	20
452	Adaptive Sliding Mode Control for Robotic Surface Treatment Using Force Feedback. **2018**, 52, 102-118	27
451	Computer applications for education on industrial robotic systems. **2018**, 26, 1186-1194	11
450	Fuzzy adaptive hybrid impedance control for mirror milling system. **2018**, 53, 20-27	21
449	A Family of Hyperbolic-Type Explicit Force Regulators with Active Velocity Damping for Robot Manipulators. **2018**, 2018, 1-15	2
448	Multi-Component FBG-Based Force Sensing Systems by Comparison With Other Sensing Technologies: A Review. **2018**, 18, 7345-7357	24
447	Human-actuator collaborative control by a novel frequency-division technique for linear maneuverability of control moment gyroscopic actuators. **2018**, 55, 224-233	2
446	Discrete-Time Formulation for Optimal Impact Control in Interaction Tasks. **2018**, 90, 407-417	19
445	Advanced force control of the 2-axes PAM-based manipulator using adaptive neural networks. **2018**, 36, 1333-1362	6
444	Preliminaries. **2018**, 1-12	2
443	Bibliography. **2018**, 205-212	
442	Optimal Trajectory Generation and Design of an 8-DoF Compliant Biped Robot for Walk on Inclined Ground. **2019**, 94, 583-602	5
441	Cartesian Impedance Control for Physical Human–Robot Interaction Using Virtual Decomposition Control Approach. **2019**, 43, 983-994	3
440	Impedance control in multiple cooperative space robots pulling a flexible wire. **2019**, 233, 2190-2205	5
439	Robotic Cutting: Mechanics and Control of Knife Motion. **2019**,	4
438	Grasping Point Estimation Based on Stored Motion and Depth Data in Motion Reproduction System. **2019**,	1

437	Experimental Validation of Contact Force Control of Quadrotor Based on Rotor Angular Acceleration Control. **2019**,		0
436	Hybrid Control and Strain Suppression Using Ball Screw Drive Device. **2019**,		
435	Robust Execution of Contact-Rich Motion Plans by Hybrid Force-Velocity Control. **2019**,		8
434	. **2019**,		8
433	Adaptive Robust Visual Servoing/Force Control for Robot Manipulator With Dead-Zone Input. **2019**, 7, 129627-129636		4
432	Collision-Free Compliance Control for Redundant Manipulators: An Optimization Case. *Frontiers in Neurorobotics*, **2019**, 13, 50	3.4	3
431	3D Ultrasound Imaging of Scoliosis with Force-Sensitive Robotic Scanning. **2019**,		7
430	Control strategies for cleaning robots in domestic applications: A comprehensive review. **2019**, 16, 1729881419857743		17
429	An introductory review of active compliant control. *Robotics and Autonomous Systems*, **2019**, 119, 185-200	3.5	18
428	Dynamic Adaptive Hybrid Impedance Control for Dynamic Contact Force Tracking in Uncertain Environments. **2019**, 7, 83162-83174		21
427	Virtual Model Control for Planetary Hexapod Robot Walking on Rough Terrain. **2019**,		1
426	Energy-Tank Based Force Control for 3D Contour Following. **2019**, 41-51		2
425	Control of Adaptive Switching in the Sensing-Executing Mode Used to Mitigate Collision in Robot Force Control. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2019**, 141,	1.6	6
424	. **2019**, 7, 108795-108805		27
423	Real-Time EMG Signal Processing with Implementation of PID Control for Upper-Limb Prosthesis. **2019**,		3
422	Hybrid Force/Position Control Strategy for Electromagnetic based Robotic Polishing Systems. **2019**,		4
421	. **2019**,		0
420	Fuzzy impedance control of an electro-hydraulic actuator with an extended disturbance observer. **2019**, 20, 1221-1233		4

419	. **2019**, 7, 148313-148325		8
418	On Switching between Motion and Force Control. **2019**,		2
417	Hybrid State Feedback Position-Force Control of Hydraulic Cylinder. **2019**,		3
416	Real-time Multisensory Affordance-based Control for Adaptive Object Manipulation. **2019**,		1
415	A Strategy for Large Workpiece Assembly Based on Hybrid Impedance Control. **2019**,		3
414	Exploitation of Environment Support Contacts for Manipulation Effort Reduction of a Robot Arm. **2019**,		1
413	Broad Fuzzy Neural Control Using Impedance Learning. **2019**,		2
412	Position/Force Tracking Impedance Control for Robotic Systems with Uncertainties Based on Adaptive Jacobian and Neural Network. **2019**, 2019, 1-16		17
411	Stable force control and contact transition of a single link flexible robot using a fractional-order controller. **2019**, 89, 139-157		23
410	Hybrid position/force output feedback second-order sliding mode control for a prototype of an active orthosis used in back-assisted mobilization. **2019**, 57, 1843-1860		5
409	Force/Position Hybrid Control for a Hexa Robot Using Gradient Descent Iterative Learning Control Algorithm. **2019**, 7, 72329-72342		12
408	An Adaptive Sliding-Mode Iterative Constant-force Control Method for Robotic Belt Grinding Based on a One-Dimensional Force Sensor. **2019**, 19,		8
407	Hybrid Open-Loop Closed-Loop Control of Coupled Human–Robot Balance During Assisted Stance Transition With Extra Robotic Legs. *IEEE Robotics and Automation Letters*, **2019**, 4, 1676-1683	4.2	15
406	Dynamic neural networks based adaptive admittance control for redundant manipulators with model uncertainties. **2019**, 357, 271-281		27
405	Tutorial Review on Space Manipulators for Space Debris Mitigation. **2019**, 8, 34		10
404	A Force Control Joint for Robot–Environment Contact Application. **2019**, 11,		2
403	Design of a Disturbance Observer for a Force Sensation Task of a Control Moment Gyroscope. **2019** ,		0
402	A Buckling Flexure-Based Force-Limiting Mechanism. **2019**, 11,		2

401	Application of novel force control strategies to enhance robotic abrasive belt grinding quality of aero-engine blades. **2019**, 32, 2368-2382	39
400	Robust adaptive motion/force control scheme for crawler-type mobile manipulator with nonholonomic constraint based on sliding mode control approach. **2019**, 92, 166-179	11
399	A Compliance Control Strategy for Adapting to Body Movements during a Percutaneous Surgery. **2019**,	
398	Event-based planning and control for active collision avoidance in human-robot collaboration. **2019**,	
397	Sim-to-Real: Designing Locomotion Controller for Six-Legged Robot. **2019**,	
396	Trajectory tracking control of two-link industrial robot manipulator based on C++. **2019**, 8, 3	0
395	Robot Machining Method Bases on Dynamic System and Compliant Control. **2019**,	0
394	Multi-Surface Admittance Control Approach applied on Robotic Assembly of Large-Scale parts in Aerospace Manufacturing. **2019**,	1
393	Development of an Autonomous Sanding Robot with Structured-Light Technology. **2019**,	1
392	Compliance control of connecting rod leg without force sensors. **2019**,	
391	A Fusion Control of Impedance and Vibration Suppression for a Manipulator with Flexible Base. **2019**,	0
390	Motion Retargeting and Control for Teleoperated Physical Human-Robot Interaction. **2019**,	3
389	Robotic Ultrasound for Catheter Navigation in Endovascular Procedures. **2019**,	8
388	Joint Torque Estimation toward Dynamic and Compliant Control for Gear-Driven Torque Sensorless Quadruped Robot. **2019**,	4
387	Learning Task Constraints from Demonstration for Hybrid Force/Position Control. **2019**,	3
386	The Analysis of Key Technologies for Advanced Intelligent Quadruped Robots. **2019**,	0
385	Compliance Control of the Hydraulic-Driven Single Legged Robot. **2019**,	1
384	Flexure Mechanisms with Variable Stiffness and Damping Using Layer Jamming. **2019**,	3

383	2D Contour Following with an Unmanned Aerial Manipulator: Towards Tactile-Based Aerial Navigation. **2019**,		6
382	Sim-to-real: Six-legged Robot Control with Deep Reinforcement Learning and Curriculum Learning. **2019**,		3
381	Passivity-Based Force Tracking Control for Flexible Joint Robots. **2019**,		0
380	Adaptive Human-Robot Interaction Control of the Lower Extremity Robotic Exoskeleton with Magnetorheological Actuators*. **2019**,		0
379	Force Regulation for Pick-and-Place Units by use of Adaptive Impedance Control in the Semiconductor-Industry with Experimental Results. **2019**, 52, 621-626		0
378	Compliant control based on impedance principle under unknown environmental stiffness. **2019**,		1
377	Event-trigger-based adaptive fuzzy hierarchical sliding mode control of uncertain under-actuated switched nonlinear systems. **2019**,		14
376	Event-based Hybrid Impedance and Admittance Control. **2019**,		
375	Force Reference Extraction via Human Interaction for a Robotic Polishing Task: Force-Induced Motion. **2019**,		0
374	Exploiting null space potentials to control arm robots compliantly performing nonlinear tactile tasks. **2019**, 16, 172988141988547		
373	A Robotic Peg-in-Hole Assembly Strategy Based on Variable Compliance Center. **2019**, 7, 167534-167546		12
372	FAT-Based Robust Adaptive Control of Electrically Driven Robots in Interaction with Environment. **2019**, 37, 779-800		15
371	Robust Hybrid Position-Force Control for Robotic Surface Polishing. **2019**, 141,		10
370	Robotic hip joint testing: Development and experimental protocols. **2019**, 63, 57-62		6
369	Optimal exciting motion for fast robot identification. Application to contact painting tasks with estimated external forces. *Robotics and Autonomous Systems*, **2019**, 113, 149-159	3.5	8
368	Learning agile and dynamic motor skills for legged robots. **2019**, 4,		255
367	Compliance/Impedance Control Strategy for Humanoids. **2019**, 1009-1028		1
366	Intelligent controller for hybrid force and position control of robot manipulators using RBF neural network. **2019**, 7, 767-775		10

365	Adaptive Tracking Control of a Class of Constrained Euler–Lagrange Systems by Factorization of Dynamic Mass Matrix. **2019**, 66, 7831-7840		6
364	Hammerstein Adaptive Impedance Controller for Bionic Wrist Joint Actuated by Pneumatic Muscles. **2019**, 7, 47-56		32
363	Adaptive neural network force tracking impedance control for uncertain robotic manipulator based on nonlinear velocity observer. **2019**, 331, 263-280		34
362	Kinematics. **2019**, 15-82		0
361	Hybrid position/force control of Stewart Manipulator using Extended Adaptive Fuzzy Sliding Mode Controller (E-AFSMC). **2019**, 88, 280-295		22
360	Bifurcations in basic models of delayed force control. **2020**, 99, 99-108		3
359	Output Feedback Hybrid Force/Motion Control for Robotic Manipulators Interacting with Unknown Rigid Surfaces. **2020**, 38, 136-158		3
358	Uniform continuity and delay robustness of an adaptive controller for Lagrangian systems. **2020**, 37, 559-588		1
357	Mixed Data-Driven and Model-Based Robot Implicit Force Control: A Hierarchical Approach. *IEEE Transactions on Control Systems Technology*, **2020**, 28, 1258-1271	4.8	9
356	Estimation of human impedance and motion intention for constrained human–robot interaction. **2020**, 390, 268-279		11
355	Neural Network-Based Hybrid Position/Force Tracking Control for Robotic Systems Without Velocity Measurement. **2020**, 51, 1125-1144		9
354	Periodic/Aperiodic Motion Control Using Periodic/Aperiodic Separation Filter. **2020**, 67, 7649-7658		5
353	A case study in human–robot collaboration in the disassembly of press-fitted components. **2020**, 234, 654-664		24
352	Touch driven controller and tactile features for physical interactions. *Robotics and Autonomous Systems*, **2020**, 123, 103332	3.5	7
351	Tolerance dataset: mating process of plug-in cable connectors for wire harness assembly tasks. **2020**, 13, 159-168		6
350	. **2020**,		1
349	Gantry type Lapping Manipulator toward Unmanned Lapping Process for a Large Work Surface. **2020**, 1		0
348	Robotic Deep Rolling With Iterative Learning Motion and Force Control. *IEEE Robotics and Automation Letters*, **2020**, 5, 5581-5588	4.2	1

347	ALPHRED: A Multi-Modal Operations Quadruped Robot for Package Delivery Applications. *IEEE Robotics and Automation Letters*, **2020**, 5, 5409-5416	4.2	13
346	Simulated Bilateral Motion Control of a Magneto-Tactic Bacterium via an Open Kinematic Chain. **2020**,		1
345	Smooth adaptive hybrid impedance control for robotic contact force tracking in dynamic environments. **2020**, 47, 231-242		7
344	Posture adjustment method for large components of aircraft based on hybrid force-position control. **2020**, 47, 381-393		5
343	Adaptive dynamic programming-based controller with admittance adaptation for robot–environment interaction. **2020**, 17, 172988142092461		3
342	Null-space impedance control of 7-degree-of-freedom redundant manipulators based on the arm angles. **2020**, 17, 172988142092529		1
341	A Control Scheme for Smooth Transition in Physical Human-Robot-Environment Between Two Modes: Augmentation and Autonomous. *IEEE Robotics and Automation Letters*, **2020**, 5, 5803-5810	4.2	1
340	Target Force Tracking and Automatic Contour Surface Processing in Grinding of Industrial Robots. **2020**,		3
339	Model-based fuzzy variable impedance sliding-mode control for trajectory tracking in physical human-robot interaction. **2020**,		
338	Surface Tracking System Based on Closed-Loop Force Control of Manipulator. **2020**,		0
337	Adaptive Dynamic Programming-Based Fault-Tolerant Position-Force Control of Constrained Reconfigurable Manipulators. **2020**, 8, 183286-183299		2
336	Joint Space Position/Torque Hybrid Control of the Quadruped Robot for Locomotion and Push Reaction. **2020**,		0
335	Force and Impedance Control for Automatic Violin Performance. **2020**,		
334	Towards a Generic Manipulation Framework for Robots based on Model Predictive Interaction Control. **2020**,		1
333	Proposal of Automatic Power Plug Insertion Control for Electric Vehicle with In-Wheel-Motors. **2020**,		
332	Neural Network-based Hybrid Position/Force Tracking Control for Flexible Joint Robot. **2020**,		
331	A Novel Force-Controlled Spherical Polishing Tool Combined With Self-Rotation and Co-Rotation Motion. **2020**, 8, 108191-108200		5
330	Tutorial Review of Bio-Inspired Approaches to Robotic Manipulation for Space Debris Salvage. **2020**, 5,		3

329	Optimal Predictive Impedance Control in the Presence of Uncertainty for a Lower Limb Rehabilitation Robot. **2020**, 33, 1310-1329		3
328	Design and Force-Tracking Impedance Control of 2-DOF Wall-Cleaning Manipulator via Disturbance Observer. *IEEE/ASME Transactions on Mechatronics*, **2020**, 25, 1487-1498	5.5	8
327	Motion-control techniques of today and tomorrow: a review and discussion of the challenges of controlled motion. **2020**, 14, 41-55		12
326	Dexterity, Sensitivity and Versatility: An Under Actuated Robotic Hand with Mechanical Intelligence and Proprioceptive Actuation. **2020**, 17, 2050006		2
325	Contact force detection and control for robotic polishing based on joint torque sensors. *International Journal of Advanced Manufacturing Technology*, **2020**, 107, 2745-2756	3.2	13
324	Separating neural influences from peripheral mechanics: the speed-curvature relation in mechanically constrained actions. **2020**, 123, 1870-1885		6
323	Impedance with Finite-Time Control Scheme for Robot-Environment Interaction. **2020**, 2020, 1-18		3
322	Robust Position/Force Control of Constrained Flexible Joint Robots with Constraint Uncertainties. **2020**, 100, 945-954		2
321	Exponentially convergence for the regressor-free adaptive fuzzy impedance control of robots by gradient descent algorithm. **2020**, 51, 1883-1904		0
320	The challenges of prosthetic design and control. **2020**, 1-17		1
319	Hybrid force/position control of master and slave robotic systems. **2020**, 43, 713-724		
318	Design of an intelligent robotic precise assembly system for rapid teaching and admittance control. **2020**, 64, 101946		7
317	Impedance control of three dimensional hybrid manipulator. **2020**, 34, 359-367		3
316	Bioinspired Embodiment for Intelligent Sensing and Dexterity in Fine Manipulation: A Survey. **2020**, 16, 4308-4321		5
315	Impedance Sliding Mode Control With Adaptive Fuzzy Compensation for Robot-Environment Interacting. **2020**, 8, 19880-19889		9
314	Vision/Position Hybrid Control for a Hexa Robot Using Bacterial Foraging Optimization in Real-time Pose Adjustment. **2020**, 12, 564		3
313	Design and Control of Parallel Gripper with Linear and Curved Trajectory Consisting of Only Revolute Pairs. **2020**,		2
312	. **2020**, 17, 1937-1949		87

311	Motion Planning With Success Judgement Model Based on Learning From Demonstration. **2020**, 8, 73142-73150		3
310	Force control-based vibration suppression in robotic grinding of large thin-wall shells. **2021**, 67, 102031		4
309	Force and Position Control of Mechatronic Systems. **2021**,		1
308	Space Robotics. **2021**,		
307	Static Model Based Grasping Force Control of Parallel Grasping Robots with Partial Cartesian Force Measurement. *IEEE/ASME Transactions on Mechatronics*, **2021**, 1-1	5.5	2
306	A ball head positioning method based on hybrid force-position control. **2021**, 235, 1433-1444		1
305	Robust cascade vision/force control of industrial robots utilizing continuous integral sliding mode control method. *IEEE/ASME Transactions on Mechatronics*, **2021**, 1-1	5.5	5
304	Sensor-Based Control for Collaborative Robots: Fundamentals, Challenges, and Opportunities. *Frontiers in Neurorobotics*, **2020**, 14, 576846	3.4	11
303	A Robust Hybrid Position/Force Control Considering Motor Torque Saturation. **2021**, 9, 34515-34528		2
302	Design and Calibration of a Joint Torque Sensor for Robot Compliance Control. **2021**, 1-1		3
301	Adaptive IBVS and Force Control for Uncertain Robotic System with Unknown Dead-zone Inputs. **2021**, 19, 1651-1660		2
300	Adaptive dynamic programming enhanced admittance control for robots with environment interaction and actuator saturation. **2021**, 5, 89-100		1
299	. **2021**, 37, 1-15		1
298	Scanning control based on real-time contact force feedback for ultrasonic thickness measurement. **2021**, 43, 2461-2471		
297	Periodic/Aperiodic Hybrid Position/Impedance Control Using Periodic/Aperiodic Separation Filter. **2021**,		1
296	Hierarchical Gait Generation for Modular Robots Using Deep Reinforcement Learning. **2021**,		
295	Discontinuous force-based robot adaptive switching update rate impedance control. **2021**,		1
294	A hybrid control strategy for grinding and polishing robot based on adaptive impedance control. **2021**, 13, 168781402110040		8

293	Virtual Motor Torque Sensing for Multirotor Propulsion Systems. *IEEE Robotics and Automation Letters*, **2021**, 6, 4149-4155	4.2	
292	Learning Variable Impedance Control via Inverse Reinforcement Learning for Force-Related Tasks. *IEEE Robotics and Automation Letters*, **2021**, 6, 2225-2232	4.2	12
291	An admittance-controlled wheeled mobile manipulator for mobility assistance: Human Robot interaction estimation and redundancy resolution for enhanced force exertion ability. **2021**, 74, 102497		9
290	kPAM 2.0: Feedback Control for Category-Level Robotic Manipulation. *IEEE Robotics and Automation Letters*, **2021**, 6, 2962-2969	4.2	5
289	State Machine-Based Hybrid Position/Force Control Architecture for a Waste Management Mobile Robot with 5DOF Manipulator. *Applied Sciences (Switzerland)*, **2021**, 11, 4222	2.6	0
288	A Human-Inspired Control Strategy for Improving Seamless Robot-To-Human Handovers. *Applied Sciences (Switzerland)*, **2021**, 11, 4437	2.6	3
287	Barrier-Lyapunov -Function-Based Backstepping Adaptive Hybrid Force/Position Control for Manipulator with Force and Position Constraints. **2021**,		0
286	Sensorless Whole-Body Compliance Control of Collaborative Manipulator Based on Haptic Filter and Position Controller. **2021**, 2021, 1-16		
285	Experimental investigation into the basic application of force and position control for human-machine team lifting operations in manufacturing. 095440542110213		
284	Active Interaction Force Control for Contact-Based Inspection With a Fully Actuated Aerial Vehicle. **2021**, 37, 709-722		19
283	Fast and Safe Contact Establishment Strategy for Biped Walking Robot. **2021**, 16, 147-154		
282	A strategy to decelerate and capture a spinning object by a dual-arm space robot. **2021**, 113, 106682		4
281	An Integrated Compensation Method for the Force Disturbance of a Six-Axis Force Sensor in Complex Manufacturing Scenarios. **2021**, 21,		1
280	Event-Triggered Adaptive Hybrid Position-Force Control for Robot-Assisted Ultrasonic Examination System. **2021**, 102, 1		17
279	A General Visual-Impedance Framework for Effectively Combining Vision and Force Sensing in Feature Space. *IEEE Robotics and Automation Letters*, **2021**, 6, 4441-4448	4.2	1
278	Safe Local Aerial Manipulation for the Installation of Devices on Power Lines: AERIAL-CORE First Year Results and Designs. *Applied Sciences (Switzerland)*, **2021**, 11, 6220	2.6	7
277	Modeling of Visco-Elastic Environments for Humanoid Robot Motion Control. *IEEE Robotics and Automation Letters*, **2021**, 6, 4289-4296	4.2	0
276	Force-guided autonomous robotic ultrasound scanning control method for soft uncertain environment. **2021**, 16, 2189-2199		0

275	Motor learning in reaching tasks leads to homogenization of task space error distribution.	
274	Part Position Correction During Assembly According to Force and Torque Sensor Signals. **2021**,	
273	Contact and Physical Interaction. **2022**, 5,	2
272	Neural network-based adaptive hybrid impedance control for electrically driven flexible-joint robotic manipulators with input saturation. **2021**, 458, 99-111	4
271	Contact force and torque sensing for serial manipulator based on an adaptive Kalman filter with variable time period. **2021**, 72, 102210	2
270	Reactive Task Adaptation of a Dynamic System with External Disturbances Based on Invariance Control and Movement Primitives. **2021**, 1-1	
269	A Novel Safety-Oriented Control Strategy for Manipulators Based on the Observation and Adjustment of the External Momentum. **2021**,	1
268	Velocity Based Hybrid Position-Force Control of Cable Robots and Experimental Workspace Analysis. **2021**, 230-242	0
267	Encyclopedia of Systems and Control. **2021**, 827-833	
266	HYBRID CONTROL DESIGN FOR A ROBOT MANIPULATOR IN A SHIELD TUNNELING MACHINE. **2006** , 143-150	2
265	Interaction Control. **2000**, 271-294	5
264	Sensorimotor Skill Transfer of Compliant Motion. **2000**, 239-246	3
263	Compliant Control of Whole-body Multi-contact Behaviors in Humanoid Robots. **2010**, 29-66	19
262	Hyper-redundant Robot Control System in Compliant Motions. **2019**, 407-415	1
261	Introduction. **2016**, 1-14	9
260	Towards Coordinated Precision Assembly with Robot Teams. **2016**, 655-669	8
259	Integrated Force and Motion Control of Parallel Robots Part 2: Constrained Space. **2010**, 253-273	3
258	Assembly Planning and Task Planning Two Prerequisites for Automated Robot Programming. **2010**, 333-354	20

257	Hybrid Force-Position Fuzzy Control for a Prosthetic Hand. **2013**, 415-426		5
256	Contact Formations and Design Constraints: A New Basis for the Automatic Generation of Robot Programs. **1988**, 361-395		5
255	Force-feedback control of parallel kinematics manipulators. **1990**, 143-158		1
254	A Self-tuning Fuzzy Robotic Force Controller. **2002**, 119-126		6
253	Contributions to MMS and IFToMM from USA. **2011**, 461-475		1
252	POLE PLACEMENT SELF-TUNING CONTROL OF MANIPULATORS. **1983**, 27-33		2
251	THE KARLSRUHE HAND. **1989**, 383-388		2
250	Kinesthetic Feedback Techniques in Teleoperated Systems. **1991**, 1-32		5
249	Principle of Orthogonalization for Hybrid Control of Robot Manipulators. **1993**, 295-302		3
248	An innovative robotic training system imitating the cervical spine behaviors during rotation□raction manipulation. *Robotics and Autonomous Systems*, **2018**, 107, 116-128	3.5	4
247	The Concurrent Control of Motion and Contact Force in the Presence of Predictable Disturbances. **2019**, 11, 060903		3
246	Analysis and Validation of a Flexible Planar Two Degrees-of-Freedom Parallel Manipulator With Structural Passive Compliance. **2020**, 12,		10
245	Application of the Rotation Matrix Natural Invariants to Impedance Control of Rotational Parallel Robots. **2010**, 2, 284976		6
244	Real-World Haptics for Motion Realization. **2013**, 2, 1-6		6
243	Utilizing the Nonlinearity of Tendon Elasticity for Compensation of Unknown Gravity of Payload. **2018**, 30, 873-879		2
242	Adaptive Generalized Predictive Controller and Cartesian Force Control for Robot Arm Using Dynamics and Geometric Identification. **2018**, 30, 927-942		2
241	IMPEDANCE CONTROL OF SPACE ROBOT. **2006**, 26,		3
240	TARGET TRACKING ROBOTIC MANIPULATION THEORIES APPLIED TO FORCE/POSITION CONTROL IN PEG-IN-HOLE ASSEMBLY TASKS. **2008**, 23,		4

239	Biorobotics. 490-520		1
238	Hybrid Position-Force Control of a Cable-Driven Parallel Robot with Experimental Evaluation. *Mechanical Sciences*, **2015**, 6, 119-125	1.3	7
237	Neural Network Compensation for Impedance Force Controlled Robot Manipulators. **2014**, 14, 17-25		4
236	A strategy for human-robot collaboration in taking products apart for remanufacture. **2019**, 47, 731-738		10
235	Enhanced Admittance Control for Time-Varying Force Tracking of Robots in Unknown Environment. **2021**, 552-562		
234	Experiments of Composite Learning Admittance Control on 7-DoF Collaborative Robots. **2021**, 532-541		1
233	A Hybrid Position/Force Controller for Joint Robots. **2021**,		
232	Minimum-Effort Task-based Design Optimization of Modular Reconfigurable Robots. **2021**,		
231	An Efficient Closed-Form Method for Optimal Hybrid Force-Velocity Control. **2021**,		0
230	Generalizing Object-Centric Task-Axes Controllers using Keypoints. **2021**,		0
229	Adaptive Impedance Control in Uncertain Environment for Uncertain Manipulator. **2021**,		
228	Contact force estimation for serial manipulator based on weighted moving average with variable span and standard Kalman filter with automatic tuning. *International Journal of Advanced Manufacturing Technology*, 1	3.2	2
227	Coordination Control of a Human/Manipulator System. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2000**, 179-185	0.6	
226	Neural Network and Fuzzy Control Techniques for Robotic Systems. **2002**,		
225	Robot Dynamics Problems, Research, and Results. **2003**, 1-9		
224	Appendix 1. **2003**, 225-234		
223	Soft and Elastodynamic Contacts. **2003**, 79-136		
222	Rigid-Body Contact of a Robot with Its Environment. **2003**, 49-78		

221	Robots and Controls. **2004**,		
220	Adaptive Modular Vector Field Control for Robot Contact Tasks in Uncertain Environments. **2004**, 16, 374-380		1
219	Decentralized Dynamic Force Distribution for Multi-legged Locomotion. **2005**, 103-111		
218	Dynamic Analysis of a Rigid-Flexible Manipulator Constrained by Arbitrary Shaped Surfaces. **2005**, 25,		2
217	From robotic arms to mobile manipulation. **2006**, 572-577		0
216	Neural Adaptive Approach-Application to Robot Force Control in an Unknown Environment. **2006**, 18, 529-538		1
215	Wideband Motion Control by Position and Acceleration Input Based Disturbance Observer. **2007**, 127, 579-586		1
214	Fractional Control of Coordinated Manipulators. **2007**, 11, 1072-1078		1
213	COMBINED ADAPTIVE-ROBUST AND NEURAL NETWORK CONTROL OF TWO RLED COOPERATING ROBOTS USING BACKSTEPPING DESIGN. **2008**, 23,		
212	Force Transmission Control in Multilateral System for Teletraining. **2008**, 128, 826-832		2
211	Development of a Manipulation Component for a Container Transferring Robot in Living Space. **2009**, 567-576		2
210	Shape-Grinding by Direct Position/Force Control. **2009**, 2, 153-161		
209	Development of a Hybrid Position/Force Controlled Hydraulic parallel Robot for Impact Treatment. **2010**, 61-67		
208	Force control of uncertain robot based on the passivity. **2010**, 59, 1615		1
207	Dynamic Hybrid Position/Force Control for Parallel Robot Manipulators. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2010**, 57-64	0.6	1
206	Proposition and Demonstration of a System Configuration Method Utilizing Mechanical Compliance for a Home-use Container Transfer Robot. **2010**, 28, 841-852		1
205	Educational Activities with a Focus on Robot Strategies Through the Development of LEGO Manipulation Robots **2011**, 23, 759-767		2
204	Modeling and Control of Space Robots. **2013**, 703-768		

203	Interaction Modeling and Force Control. 233-268	
202	Design and Optimization of Hydraulically Actuated Hexapod Robot COMET-IV. **2014**, 41-84	
201	Interaction Control of UVMSs. **2014**, 233-255	1
200	Force Control. **2014**, 1-29	
199	A Human Augmentation Approach to Gait Restoration. **2014**, 345-377	1
198	Continuous Shape-Grinding Experiment Based on Constraint-Combined Force/Position Hybrid Control Method. **2014**, 7, 2-11	0
197	Integrated Vision Based Work Cell. **1984**, 109-119	
196	Non-adaptive Dynamic Control for Manipulation Robots: Invited Survey Paper. **1985**, 109-122	
195	Non-Adaptive Control of Manipulation Robots with Variable Parameters. **1985**, 36-183	2
194	Robot Control and Computer Languages. **1985**, 187-193	1
193	C-Surface Theory Applied to Force-Feedback Control of Robots. **1987**, 361-368	1
192	Invariant Kinestatic Filtering. **1987**, 120-127	1
191	Bearbeitung mit Robotersystemen Wege zu neuen Anwendungen. **1988**, 152-162	
190	Modelling the Interaction between Robot and Environment. **1989**, 17-36	
189	STABILITY ANALYSIS OF POSITION-FORCE CONTROL USING LINEARIZED CARTESIAN SPACE MODEL. **1989**, 249-254	
188	CONTROL SYSTEM DESIGN OF A DEXTEROUS HAND FOR INDUSTRIAL ROBOTS. **1989**, 389-394	
187	A TASK SPACE DECOUPLING APPROACH TO HYBRID CONTROL OF MANIPULATORS. **1989**, 157-162	1
186	Joint Compliance Control of the Anthropomorphic Manipulator. **1989**, 592-603	

185 A Generalized Approach for the Control of Constrained Robots. **1989**, 613-639

184 AUTOMATIC FINE-MOTION PLANNING BASED ON POSITION/FORCE STATES. **1990**, 301-307

183 Sensing and Analysis of End-Effector Forces for Precision Assembly. **1991**, 1013-1018

182 Sensing and Analysis of End-Effector Forces for Precision Assembly. **1991**, 429-434

181 Neuromorphic Control for Robotic Manipulator. **1991**, 197-204 2

180 ON THE STABILITY OF A FORCE/POSITION CONTROL SCHEME FOR ROBOT MANIPULATORS. **1992**, 183-188 1

179 On Synthesis of a Hybrid Position/Force Controller for Robot Manipulators. **1993**, 287-293

178 Cartesian-Based Iterative Learning Control of Manipulators for Constrained Motion. **1993**, 461-473

177 Modulation of Robotic Motor Synergies Using Reinforcement Learning Optimization. **1993**, 521-538

176 Proposal for a Pattern Matching Task Controller for Sensor-Based Coordination of Robot Motions. **1993**, 445-455

175 Fuzzy Control of Robotic Manipulators and Mechanical Systems. **1994**, 451-491 1

174 Stability of Hybrid Position/Force Control Scheme During Free Motion. **1994**, 128-132

173 Literaturverzeichnis. **1994**, 177-182

172 Neural networks for performance improvement in robot control during general task execution. **1994**,

171 A LYAPUNOV-STABLE ADAPTIVE SCHEME FOR FORCE REGULATION AND MOTION CONTROL OF ROBOT MANIPULATORS. **1995**, 227-232

170 Robust Control of a Two-arm Robot: An efficient implementation in a DSP-based controller. **1995**, 162-175

169 Impedance Control of an Industrial Manipulator in a Dual Arm Assembly Cell. **1995**, 153-159

168 Inverse Dynamics Approach for Invariant Control of Constrained Robots. **1995**, 177-185

167	Motion Planning and Contact Control for a Tele-Assisted Hydraulic Underwater Robot. **1996**, 159-177	
166	Motion and force control. **1996**, 141-175	1
165	Practical Stabilisation of Robots Interacting with Dynamic Environment by Decentralised Control. **1997**, 311-318	
164	A Decision-Making System for the Initial Stage Implementation of Assembly Strategies. **1997**, 409-418	
163	Where does the Task Frame go?. **1998**, 55-65	0
162	Feedback Control with Force and Visual Sensor Fusion. **1999**, 183-216	
161	Force Control. **2015**, 1933-1965	2
160	Kinestatic Control using Six-axis Parallel-type Compliant Device. **2014**, 23, 421-427	
159	Development of a Hydraulic Shroud Nozzle Manipulator with Robust Force Control in Continuous Casting Process. **2015**, 55, 1025-1034	1
158	Position/Force Control Using a 6-axis Compliance Device with Force/Torque Sensing Capability. **2015**, 35-39	
157	Force control technology of segment mirror exchange robot for Thirty Meter Telescope (TMT). **2016**,	1
156	Control of Low-Cost Customizable Robot Arm Actuated by Elastic Tendons. **2016**, 28, 509-522	2
155	Compliance/Impedance Control Strategy for Humanoids. **2017**, 1-20	
154	Design of the 6-axis Compliance Device with F/T Sensing for Robotic Force Control Applications. **2017**,	
153	Harnessing Vision and Touch for Compliant Robotic Interaction with Soft or Rigid Objects. **2017**, 269-290	
152	A Control System for a Tool Use Robot: Drawing a Circle by Educing Functions of a Compass. **2017**, 29, 395-405	1
151	Telexistence and Real Haptics. **2018**, 36, 668-672	
150	Satellite Assembly Technology by Robot Under Visual Guidance and Force Feedback Control. **2019**, 649-659	

149 Dual-stage Soft Landing for a Pick-and-place Manipulator. **2020**, 53, 9061-9067

148 Selection of Required Controller for Position- and Force-Based Task in Motion Copying System. **2020**, 32, 113-127 0

147 Robotic Sanding of Wooden Bowls with Hybrid Force/Position Impedance Control. **2020**,

146 Adaptive Nonsingular Fast Terminal Sliding Mode Impedance Control for Uncertainty Robotic Manipulators. 1 2

145 Admittance Force Tracking Control Schemes for Robot Manipulators under Uncertain Environment and Dynamics. **2021**, 19, 3753-3763 0

144 Introduction. **2021**, 1-28

143 Optimal and Robust Contact Force Control on Soft Membrane. **2021**, 109-131

142 Simulative investigation of hybrid force and position control for electromechanical feed axes in production machines. e12354

141 Analogous adaptations in speed, impulse and endpoint stiffness when learning a real and virtual insertion task with haptic feedback. **2020**, 10, 22342 1

140 Optimization-Based Compliant Control for Manipulators Under Dynamic Obstacle Constraints. **2020**, 83-104

139 RNN Based Adaptive Compliance Control for Robots with Model Uncertainties. **2020**, 39-61

138 Upper Extremity Rehabilitation Systems and Augmented Feedback. **2020**, 148-160

137 Quick Setup of Force-Controlled Industrial Gluing Tasks Using Learning From Demonstration. **2021**, 8, 767878 2

136 Adaptive variable impedance control for a modular soft robot manipulator in configuration space. **2022**, 57, 1 1

135 Online performance optimization for complex robotic assembly processes. **2021**, 72, 544-552 0

134 Biorobotics. 1613-1643

133 Interaction Control. **2001**, 121-154

132 Force-Based Interaction for Distributed Precision Assembly. **2001**, 141-150

131	Reconfigurable Control of Constrained Flexible Joint Robots Interacting with Dynamic and Changeable Environment. **2009**, 163-176		
130	Software architecture for manufacturing and space robotics. **1987**,		
129	Teleoperation system of power shovel for subterranean line works.		
128	Control de posici□ y fuerza con estimaci□ de masa para sistemas cooperativos. **2020**, 17, 368		
127	Force Control of Space Robot. **2021**, 85-104		1
126	Admittance Force Tracking Control for Position-Controlled Robot Manipulators Under Unknown Environment.		0
125	Tek M□natı□ aracı□le bir Manyetotaktik Bakterinin Adaptif Manevra Kontrol□ □□n Ba□ns□ Eklem Kontrol Simulasyonlar□		0
124	Hybrid force/position control for quasi continuum manipulators. **2020**, 68, 854-862		2
123	Dynamic neural networks based adaptive optimal impedance control for redundant manipulators under physical constraints. **2022**, 471, 149-160		3
122	Benchmarking Structured Policies and Policy Optimization for Real-World Dexterous Object Manipulation. *IEEE Robotics and Automation Letters*, **2022**, 7, 478-485	4.2	0
121	Autonomous grinding algorithms with future prospect towards SMART manufacturing: A comparative survey. **2022**, 62, 164-185		2
120	Thiet ke, m□phong, che tao v^ □eu khien c□h tay robot 3 bac tu do. **2021**, 40-47		
119	Research on Robot Visual Grabbing Based on Mechanism Analysis. **2021**,		
118	Deep Reinforcement Learning with Shaping Exploration Space for Robotic Assembly. **2021**,		0
117	. **2021**,		
116	EGM Toolbox-Interface for Controlling ABB Robots in Simulink. **2021**, 21,		2
115	How to Build a Linkage between High-Quality Assurance Production System and Production Support Automated System. 8, 19-28		
114	Teleoperation and Visualization Interfaces for Remote Intervention in Space.. **2021**, 8, 747917		

113	A new bionic hydraulic actuator system for legged robots with impact buffering, impact energy absorption, impact energy storage, and force burst. 1-18	2
112	A Method to Make a Robot Understand What was a Target Object in Motion Copying System. **2020**,	0
111	Admittance Control Based on a Stiffness Ellipse for Rapid Trajectory Deformation. **2020**,	1
110	Progressive automation of periodic tasks on planar surfaces of unknown pose with hybrid force/position control. **2020**,	0
109	Reducing the Teleoperator□ Cognitive Burden for Complex Contact Tasks Using Affordance Primitives. **2020**,	0
108	Vision and force based autonomous coating with rollers. **2020**,	0
107	Path following and terminal force control of robotic manipulators. **2020**,	1
106	Model Predictive Position and Force Trajectory Tracking Control for Robot-Environment Interaction. **2020**,	1
105	Overview of Robot Force Control Algorithms Based on Neural Network. **2020**,	0
104	Environment Information-based Impedance Control. **2021**,	
103	ILoSA: Interactive Learning of Stiffness and Attractors. **2021**,	2
102	Grasping with Embedded Synergies through a Reconfigurable Electric Actuation Topology. **2021**,	
101	Design and Evaluation of a Hair Combing System Using a General-Purpose Robotic Arm. **2021**,	0
100	□sans□Robot Kolu Tasar□m□Benzetimi, Kinestetik □enme, Empedans Kontrol□ve □eriler.	
99	Sensorless Force Control Algorithm based on Momentum Observer Technique. **2021**,	
98	Comparison Studies of Two Major Force Control Algorithms for a Single Axis Force Control of a Robot Manipulator. **2021**,	0
97	A Time-delayed Compensation Technique for Hybrid Force Control of Robot Manipulators. **2021**,	
96	A Focus on Motion Dynamics: Planning Impedance Behaviors in Physical Interaction. **2022**, 171-184	

95	Extended Sliding Mode Observer-Based Impedance Control for Hydraulic Robots. *IEEE Robotics and Automation Letters*, **2022**, 1-1	4.2	0
94	Force Control of Grinding Process Based on Frequency Analysis. *IEEE Robotics and Automation Letters*, **2022**, 7, 3250-3256	4.2	1
93	Real-time normal contact force control for robotic surface processing of workpieces without a priori geometric model. *International Journal of Advanced Manufacturing Technology*, 1	3.2	2
92	Application of the Half-Order Derivative to Impedance Control of the 3-PUU Parallel Robot. **2022**, 11, 45		1
91	Dynamic Primitives Limit Human Force Regulation During Motion. *IEEE Robotics and Automation Letters*, **2022**, 7, 2391-2398	4.2	0
90	Robust interaction control for environments having uncertainties. *Robotics and Autonomous Systems*, **2022**, 151, 104023	3.5	0
89	Fast soft contact motion using force control with virtual viscosity field. **2022**,		0
88	Design of a Fuzzy Fractional Order Adaptive Impedance Controller with Integer Order Approximation for Stable Robotic Contact Force Tracking in Uncertain Environment. **2022**, 16, 16-26		0
87	Bio-inspired Motor Control Strategies for Redundant Manipulators. **2022**, 1-19		
86	A Stability and Safety Control Method in Robot-Assisted Decompressive Laminectomy Considering Respiration and Deformation of Spine. **2022**, 1-13		0
85	Evaluation of Variable Impedance- and Hybrid Force/MotionControllers for Learning Force Tracking Skills. **2022**,		1
84	Introduction of Damping Control for Obstacle Avoidance in Direct-Contact Cobotics Operations. **2022**, 506-517		
83	Sensory-Motor Learning for Simultaneous Control of Motion and Force: Generating Rubbing Motion against Uneven Object. **2022**,		1
82	Force Control and Assembly. **2022**, 115-151		
81	THE DETECTION OF MINEFIELD IN SPECTRAL MAPPING WITH USING OF UAV. **2022**,		1
80	A Kind of Electro-Hydraulic Servo System Cooperative Control Simulation and Experiment Research. **2022**, 15,		0
79	Adaptive neural networks force/position control of uncertain manipulators subject to input saturation and output constraints. 095965182210802		
78	Adaptive Variable Impedance Control with Fuzzy-PI Compound Controller for Robot Trimming System. 1		0

77	Adaptive enhanced admittance force-tracking controller design for highly dynamic interactive tasks. **2022**, ahead-of-print,		0
76	A Robot Human-Like Learning Framework Applied to Unknown Environment Interaction. **2022**, 2022, 1-10		
75	Application of Soft Actuation to Bilateral Control and Haptic Reproduction. **2022**, 20, 992-1001		0
74	Tactile-Based Task Definition Through Edge Contact Formation Setpoints for Object Exploration and Manipulation. *IEEE Robotics and Automation Letters*, **2022**, 7, 5007-5014	4.2	
73	Hybrid Vision-Force Robot Force Control for Tasks on Soft Tissues. **2021**,		
72	Hybrid Force and Position Control. **2022**, 1-6		0
71	Meta Reinforcement Learning for Robust and Adaptable Robotic Assembly Tasks. **2021**,		
70	Human□computer Interactions Through Multi-agent Systems: Design and Implementations. **2022**, 5-32		
69	Dynamic Analysis of 6DOF Compliance Device for Passive Vibration Isolation. *Lecture Notes in Mechanical Engineering*, **2022**, 341-348	0.4	
68	Current State of Robotics in Hand Rehabilitation after Stroke: A Systematic Review. *Applied Sciences (Switzerland)*, **2022**, 12, 4540	2.6	0
67	Dexterous Manipulation for Multi-Fingered Robotic Hands With Reinforcement Learning: A Review.. *Frontiers in Neurorobotics*, **2022**, 16, 861825	3.4	1
66	VDC-based admittance control of multi-DOF manipulators considering joint flexibility via hierarchical control framework. *Control Engineering Practice*, **2022**, 124, 105186	3.9	0
65	RBF Sliding Mode Control Method for an Upper Limb Rehabilitation Exoskeleton Based on Intent Recognition. *Applied Sciences (Switzerland)*, **2022**, 12, 4993	2.6	0
64	Robust walking stabilization strategy of humanoid robots on uneven terrain via QP-based impedance/admittance control. *Robotics and Autonomous Systems*, **2022**, 104148	3.5	
63	Parallel Image-Based Visual Servoing/Force Control of a Collaborative Delta Robot. *Frontiers in Neurorobotics*, **2022**, 16,	3.4	
62	Effects of control strategies on gait in robot-assisted post-stroke lower limb rehabilitation: a systematic review. *Journal of NeuroEngineering and Rehabilitation*, **2022**, 19,	5.3	2
61	Design and Control of TAWLA Wheel-Legged Rover With Terrain-Adaptive Wheel Speed Allocation Capability. *IEEE/ASME Transactions on Mechatronics*, **2022**, 1-12	5.5	1
60	Model-Based Control for Arm Support Exoskeleton. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2022**, 99-105	0.6	

59	Impedance Control on Arbitrary Surfaces for Ultrasound Scanning Using Discrete Differential Geometry. *IEEE Robotics and Automation Letters*, **2022**, 1-8	4.2	
58	Hybrid Adaptive Vision-Force Control Under the Bottleneck Constraint. *IEEE Transactions on Control Systems Technology*, **2022**, 1-12	4.8	
57	Hybrid orientation/force control for robotic polishing with a 2R1T force-controlled end-effector. *International Journal of Advanced Manufacturing Technology*, **2022**, 121, 2279-2290	3.2	2
56	Varying rate adaptive hybrid position□impedance control for robot-assisted ultrasonic examination system. *Mechanical Sciences*, **2022**, 13, 559-575	1.3	
55	Multi-Dimensional Compliance of Soft Grippers Enables Gentle Interaction with Thin, Flexible Objects. **2022**,		
54	Manipulation of unknown objects via contact configuration regulation. **2022**,		
53	Easing Reliance on Collision-free Planning with Contact-aware Control. **2022**,		
52	Object Inserting Operation with Admittance Control of A 4-DOF Hydraulic Manipulator with Rotary Vane Actuators. **2022**,		
51	Fractional Order KDHD Impedance Control of the Stewart Platform. *Machines*, **2022**, 10, 604	2.9	1
50	Performance Analysis of Acceleration Estimation Effect on a Cartesian Time-delayed Controller for a Robot Manipulator. **2022**,		
49	Development of a Finishing Robot System. **2022**,		
48	Hybrid Impedance Force Tracking Control of a Robot Manipulator under Non-model Dynamics and Nonlinear Uncertianties. **2022**,		
47	Adaptive finite-time impedance backstepping control for uncertain robotic systems interacting with unknown environments. 1-12		0
46	Collaborative analysis of audio-visual speech synthesis with sensor measurements for regulating human□obot interaction.		0
45	Model Predictive Interaction Control based on a Path-Following Formulation. **2022**,		
44	A Review of Robot Grinding and Polishing Force Control Mode. **2022**,		0
43	A survey of robot manipulation in contact. **2022**, 156, 104224		3
42	Adaptive fixed-time hierarchical sliding mode control for switched under-actuated systems with dead-zone constraints via event-triggered strategy. **2022**, 435, 127441		4

41	Superiority of q-Chlodowsky operators versus fuzzy systems and neural networks: Application to adaptive impedance control of electrical manipulators. **2022**, 209, 118249	0
40	Adaptive Impedance Control Method for Dynamic Contact Force Tracking of Robotic Excavators. **2022**, 148,	2
39	Force Coordination Control of Dual-Arm Robot Based on Modified Sliding Mode Impedance Control. **2022**, 134-145	0
38	A Compliant Strategy of a Underactuated Gripper to Grasp a Space Cooperative Target Based on Hybrid Impedance Control. **2022**, 482-492	0
37	Force Tracking Impedance Control Based on Contour Following Algorithm. **2022**, 698-709	0
36	Modeling for Hybrid Obstacle-Aided Locomotion (HOAL) of Snake Robots. **2022**, 55, 247-252	0
35	Force Controlled Deburring using a Collaborative Robot. **2022**,	0
34	Force-Control Capabilities for Lightweight Industrial Robots. **2022**,	0
33	Robust Artificial Delay based Impedance Control of Robotic Manipulators with Uncertain Dynamics. **2022**,	0
32	Sliding mode disturbance observer and Q learning-based bilateral control for underwater teleoperation systems. **2022**, 109684	0
31	Active compliance force control based on an iterative learning strategy for multi-task manipulation of robots. **2022**,	0
30	Hierarchical Decoupling Controller With Cylinder Separated Model of Hydraulic Manipulators for Contact Force/Motion Control. **2022**, 1-12	0
29	Motion and Force Control of Servo Die Cushion System using Bilateral Control. **2022**, 55, 44-49	0
28	Segmented hybrid motion-force control for a hyper-redundant space manipulator. **2022**, 131, 107981	0
27	Team O2AC at the world robot summit 2020: towards jigless, high-precision assembly. 1-15	0
26	A Non-Contact Manipulation for Robotic Applications: A Review on Acoustic Levitation. **2022**, 10, 120823-120837	37
25	Contact Force Detection of Grinding Process Using Frequency Information and Differential Feature on Force Signal. **2022**, 10, 127140-127148	0
24	A Method of Tight Placement for Robotic Dense Packing. **2022**,	0

23	Adaptive Hybrid Variable Impedance Control of Industrial Manipulators. **2022**,	0
22	A fully actuated aerial manipulator system for industrial contact inspection applications.	0
21	Adaptive fixed-time minimal learning force/position control of uncertain manipulators subject to input saturation.	0
20	Force Sensorless Hybrid Position/Force Control with Equivalent Mass Matrices Switching for Decoupled Rubbing Motion. **2023**,	0
19	SEED: Series Elastic End Effectors in 6D for Visuotactile Tool Use. **2022**,	0
18	A Framework for Transferring Surface Finishing Skills to New Surface Geometries. **2022**,	0
17	Flexible and Precision Snap-Fit Peg-in-Hole Assembly Based on Multiple Sensations and Damping Identification. **2022**,	0
16	Force Control of a Foldable Robot Arm in a Drone for a Solar Panel Cleaning Task. **2022**,	0
15	Development of a Robotic-Machining based Variable Cutting Force Servo System for Casting Scrap Removal. **2022**,	0
14	Control Systems in Lower-limb Exoskeletons for Rehabilitation and/or Assistance: A Brief Review. **2022**,	0
13	Adaptive Sliding Mode Control for Force Tracking Using Nonlinear Observer. **2022**,	0
12	Adaptive fractional-order admittance control for force tracking in highly dynamic unknown environments. **2023**, 50, 530-541	0
11	DISCRETE ADAPTIVE CONTROL OE A MANIPULATOR ARM. **1982**, 3, 423-433	1
10	Contact force cancelation in robot impedance control by target impedance modification. 1-16	0
9	Surface polishing by industrial robots: a review. **2023**, 125, 3981-4012	0
8	Torque Compensation Model and Touchdown Detection Model of the Hydraulic Quadruped Robot Controlled by VMC. **2022**,	0
7	Decoupled Model Predictive Control for Path Following on Complex Surfaces. **2023**, 8, 2046-2053	0
6	Target focus capture system based on enhancement learning and impedance variable structure control.	0

5	Force tracking smooth adaptive admittance control in unknown environment. 1-21	0
4	Generation of Spontaneously Corresponding Motions by Mahalanobis Distance and Distributed Control. **2023**, 21, 12-16	0
3	VISION SYSTEMS OF UAVs AND SIMULATION OF OBJECT RECOGNITION IN MATLAB ENVIRONMENT. **2023**,	0
2	Design, Calibration, and Control of Compliant Force-Sensing Gripping Pads for Humanoid Robots. **2023**, 15,	0
1	A Stability Analysis for the Reaction Torque Observer-based Sensorless Force Control Systems. **2023**,	0