Aki Mikkola

List of Publications by Year
in descending order

128	1,909	279701	360920
		23	35
papers	citations	h-index	g-index

132	132	132	1075
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Applying ultrasound plus electrokinetics to enhance sludge dewatering. Drying Technology, 2022, 40, 2990-3002.	1.7	4
2	Rod-removal technique for flexible-rods in the framework of semi-recursive multibody formulation. Mechanism and Machine Theory, 2022, 169, 104625.	2.7	2
3	Comparison of numerical and computational aspects between two constraint-based contact methods in the description of wheel/rail contacts. Multibody System Dynamics, 2022, 54, 303-344.	1.7	4
4	A Reduced and Linearized High Fidelity Waveboard Multibody Model for Stability Analysis. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	0.7	2
5	Conjugate heat transfer in isolated granular clusters with interstitial fluid using lattice Boltzmann method. International Journal of Heat and Mass Transfer, 2022, 187, 122539.	2.5	9
6	Determining the State of a Nonlinear Flexible Multibody System Using an Unscented Kalman Filter. IEEE Access, 2022, 10, 40237-40248.	2.6	2
7	Analysis of electromechanical systems based on the absolute nodal coordinate formulation. Acta Mechanica, 2022, 233, 1019-1030.	1.1	2
8	An Overview of Higher-Order Beam Elements Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	0.7	7
9	State estimator based on an indirect Kalman filter for a hydraulically actuated multibody system. Multibody System Dynamics, 2022, 54, 373-398.	1.7	13
10	Physics-Based Digital Twins Merging With Machines: Cases of Mobile Log Crane and Rotating Machine. IEEE Access, 2022, 10, 45962-45978.	2.6	13
11	Performance review of locking alleviation methods for continuum ANCF beam elements. Nonlinear Dynamics, 2022, 109, 531-546.	2.7	12
12	The explanation of two semi-recursive multibody methods for educational purpose. Mechanism and Machine Theory, 2022, 175, 104935.	2.7	5
13	State Estimation in a Hydraulically Actuated Log Crane Using Unscented Kalman Filter. IEEE Access, 2022, 10, 62863-62878.	2.6	7
14	Procedure for non-smooth contact for planar flexible beams with cone complementarity problem. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2021, 235, 179-196.	0.5	2
15	Iterative refinement algorithm for efficient velocities and accelerations solutions in closed-loop multibody dynamics. Mechanical Systems and Signal Processing, 2021, 152, 107463.	4.4	16
16	Data-driven simulation for general-purpose multibody dynamics using Deep Neural Networks. Multibody System Dynamics, 2021, 51, 419-454.	1.7	17
17	Real-Time Multibody Model-Based Heads-Up Display Unit of a Tractor. IEEE Access, 2021, 9, 57645-57657.	2.6	10
18	Comparing double-step and penalty-based semirecursive formulations for hydraulically actuated multibody systems in a monolithic approach. Multibody System Dynamics, 2021, 52, 169-191.	1.7	14

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19	Creating value with sustainable production based on real-time simulation. , 2021, , 1-9.		1
20	Gamification and the marketing of agricultural machinery. , 2021, , 77-89.		2
21	Efficiency comparison of various friction models of a hydraulic cylinder in the framework of multibody system dynamics. Nonlinear Dynamics, 2021, 104, 3497-3515.	2.7	23
22	Estimating the Characteristic Curve of a Directional Control Valve in a Combined Multibody and Hydraulic System Using an Augmented Discrete Extended Kalman Filter. Sensors, 2021, 21, 5029.	2.1	14
23	A study of contact methods in the application of large deformation dynamics in self-contact beam. Nonlinear Dynamics, 2021, 103, 581-616.	2.7	18
24	Tree-topology-oriented modeling for the real-time simulation of sedan vehicle dynamics using independent coordinates and the rod-removal technique. Mechanism and Machine Theory, 2020, 143, 103626.	2.7	24
25	Impurity separation efficiency of multi-component wastewater in a pilot-scale freeze crystallizer. Separation and Purification Technology, 2020, 236, 116271.	3.9	9
26	Measurement and evaluation of natural frequencies of bulk ice plate using Scanning Laser Doppler Vibrometer. Measurement: Journal of the International Measurement Confederation, 2020, 150, 107091.	2.5	4
27	Equivalence of Lagrange's equations for non-material volume and the principle of virtual work in ALE formulation. Acta Mechanica, 2020, 231, 1141-1157.	1.1	11
28	Targeting the user experience in the development of mobile machinery using real-time multibody simulation. Advances in Mechanical Engineering, 2020, 12, 168781402092317.	0.8	10
29	Automated Excavator Based on Reinforcement Learning and Multibody System Dynamics. IEEE Access, 2020, 8, 213998-214006.	2.6	23
30	Real-Time Simulation of Fluid Power Systems Containing Small Oil Volumes, Using the Method of Multiple Scales. IEEE Access, 2020, 8, 196940-196950.	2.6	4
31	The validation of a semi-recursive vehicle dynamics model for a real-time simulation. Mechanism and Machine Theory, 2020, 151, 103907.	2.7	20
32	On the cosimulation of multibody systems and hydraulic dynamics. Multibody System Dynamics, 2020, 50, 143-167.	1.7	22
33	Ankle and knee extensor muscle effort during locomotion in young and older athletes: Implications for understanding age-related locomotor decline. Scientific Reports, 2020, 10, 2801.	1.6	11
34	Dynamic Response of a Lightweight Stator Structure for a Large Diameter Direct-Drive Wind Turbine Generator. Mechanisms and Machine Science, 2019, , 503-517.	0.3	0
35	Cone complementarity approach for dynamic analysis of multiple pendulums. Advances in Mechanical Engineering, 2019, 11, 168781401985674.	0.8	2
36	An efficient multibody dynamic model of three-dimensional meshing contacts in helical gear-shaft system and its solution. Mechanism and Machine Theory, 2019, 142, 103607.	2.7	20

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37	An Efficient High-Order Time-Step Algorithm With Proportional-Integral Control Strategy for Semirecursive Vehicle Dynamics. IEEE Access, 2019, 7, 40833-40842.	2.6	4
38	Dynamic analysis of rotating shafts using the absolute nodal coordinate formulation. Journal of Sound and Vibration, 2019, 453, 214-236.	2.1	19
39	Accurate real-time truck simulation via semirecursive formulation and Adams–Bashforth–Moulton algorithm. Acta Mechanica Sinica/Lixue Xuebao, 2019, 35, 641-652.	1.5	14
40	A Methodology for Product Development in Mobile Machinery: Case Example of an Excavator. Machines, 2019, 7, 70.	1.2	6
41	Deformable Terrain Model for the Real-Time Multibody Simulation of a Tractor With a Hydraulically Driven Front-Loader. IEEE Access, 2019, 7, 172694-172708.	2.6	20
42	The Value of Digital Twins and IoT Based Services in Creating Lifecycle Value in B2B Manufacturing Companies. , 2019, , .		1
43	Separation efficiency and ice strength properties in simulated natural freezing of aqueous solutions. Cold Regions Science and Technology, 2019, 158, 18-29.	1.6	10
44	Numerical Treatment of Singularity in Hydraulic Circuits Using Singular Perturbation Theory. IEEE/ASME Transactions on Mechatronics, 2019, 24, 144-153.	3.7	14
45	Flexible multibody modeling of reeving systems including transverse vibrations. Multibody System Dynamics, 2018, 44, 107-133.	1.7	15
46	Enhanced sludge dewatering based on the application of high-power ultrasonic vibration. Ultrasonics, 2018, 84, 438-445.	2.1	26
47	The Benefits and Impact of Digital Twins in Product Development Phase of PLM. IFIP Advances in Information and Communication Technology, 2018, , 432-441.	0.5	10
48	Computationally efficient approach for simulation of multibody and hydraulic dynamics. Mechanism and Machine Theory, 2018, 130, 435-446.	2.7	30
49	Purity and mechanical strength of naturally frozen ice in wastewater basins. Water Research, 2018, 145, 418-428.	5.3	9
50	Combined semi-recursive formulation and lumped fluid method for monolithic simulation of multibody and hydraulic dynamics. Multibody System Dynamics, 2018, 44, 293-311.	1.7	21
51	A model order reduction method for the simulation of gear contacts based on Arbitrary Lagrangian Eulerian formulation. Computer Methods in Applied Mechanics and Engineering, 2018, 338, 68-96.	3.4	32
52	Vibration analysis of paper machine's asymmetric tube roll supported by spherical roller bearings. Mechanical Systems and Signal Processing, 2018, 104, 688-704.	4.4	18
53	Gamification Procedure Based on Real-Time Multibody Simulation. International Review on Modelling and Simulations, 2018, 11, 259.	0.2	7
54	Inertia forces and shape integrals in the floating frame of reference formulation. Nonlinear Dynamics, 2017, 88, 1953-1968.	2.7	22

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55	A touchdown bearing with surface waviness: Friction loss analysis. Mechanism and Machine Theory, 2017, 110, 73-84.	2.7	18
56	A touchdown bearing with surface waviness: A dynamic model using a multibody approach. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2017, 231, 658-669.	0.5	3
57	Models for dynamic analysis of backup ball bearings of an AMB-system. Mechanical Systems and Signal Processing, 2017, 95, 324-344.	4.4	16
58	Higher-order beam elements based on the absolute nodal coordinate formulation for three-dimensional elasticity. Nonlinear Dynamics, 2017, 88, 1075-1091.	2.7	38
59	Analysis of high-order quadrilateral plate elements based on the absolute nodal coordinate formulation for three-dimensional elasticity. Advances in Mechanical Engineering, 2017, 9, 168781401770506.	0.8	11
60	Planetary gear sets power loss modeling: Application to wind turbines. Tribology International, 2017, 105, 42-54.	3.0	42
61	A new elastohydrodynamic lubricated spherical joint model for rigid-flexible multibody dynamics. Mechanism and Machine Theory, 2017, 107, 210-228.	2.7	56
62	On the dynamic analysis of rotating shafts using nonlinear superelement and absolute nodal coordinate formulations. Advances in Mechanical Engineering, 2017, 9, 168781401773267.	0.8	7
63	Modeling and Dynamic Analysis of Spherical Roller Bearing with Localized Defects: Analytical Formulation to Calculate Defect Depth and Stiffness. Shock and Vibration, 2016, 2016, 1-11.	0.3	6
64	Higher-Order Plate Elements for Large Deformation Analysis in Multibody Applications. , 2016, , .		3
65	Walking and Running Require Greater Effort from the Ankle than the Knee Extensor Muscles. Medicine and Science in Sports and Exercise, 2016, 48, 2181-2189.	0.2	34
66	A simple mechanical model for simulating cross-country skiing, skating technique. Sports Engineering, 2016, 19, 91-104.	0.5	4
67	Real-time analysis of mobile machines using sparse matrix technique. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2016, 230, 615-625.	0.5	2
68	Merge of motion analysis, multibody dynamics and finite element method for the subject-specific analysis of cartilage loading patterns during gait: differences between rotation and moment-driven models of human knee joint. Multibody System Dynamics, 2016, 37, 271-290.	1.7	25
69	Stresses of an AMB-Supported Rotor Arising From the Sudden Contact With Backup Bearings. , 2015, , .		0
70	Simulation Environment for the Real-Time Dynamic Analysis of Hybrid Mobile Machines. , 2015, , .		2
71	A Simple Mechanical Model for Simulating Cross-Country Skiing Propulsive Force. , 2015, , .		0
72	Layered Sheet-Steel Damping Estimation Using Optical Vibrometry. , 2015, , .		3

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73	Generation of matrices of an arbitrary finite element by its digital nomenclature code dncm. , 2015, , .		0
74	Three new triangular shell elements of ANCF represented by Bézier triangles. Multibody System Dynamics, 2015, 35, 321-351.	1.7	24
75	Experimental validation of flexible multibody dynamics beam formulations. Multibody System Dynamics, 2015, 34, 373-389.	1.7	21
76	Ball bearing model performance on various sized rotors with and without centrifugal and gyroscopic forces. Mechanism and Machine Theory, 2015, 90, 240-260.	2.7	29
77	Lightweight stator structure for a large diameter direct‐drive permanent magnet synchronous generator intended for wind turbines. IET Renewable Power Generation, 2015, 9, 711-719.	1.7	10
78	Spherical Roller Bearing Simulation Model with Localized Defects. Mechanisms and Machine Science, 2015, , 1899-1909.	0.3	0
79	Semantic restrictions and rules in applications of multibody dynamics. Engineering With Computers, 2015, 31, 85-97.	3.5	2
80	Active magnetic bearing-supported rotor with misaligned cageless backup bearings: A dropdown event simulation model. Mechanical Systems and Signal Processing, 2015, 50-51, 692-705.	4.4	31
81	A Contact Event Model for an AMB-supported Rotor. Mechanisms and Machine Science, 2015, , 1513-1523.	0.3	0
82	Multi-Body Simulation Based Development Environment for Hybrid Working Machines. International Review on Modelling and Simulations, 2015, 8, 466.	0.2	2
83	Real-time multibody application for tree harvester truck simulator. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2014, 228, 182-198.	0.5	13
84	Twice-Running-Speed Resonances of a Paper Machine Tube Roll Supported by Spherical Roller Bearings: Analysis and Comparison With Experiments. , 2014, , .		2
85	Which muscles compromise human locomotor performance with age?. Journal of the Royal Society Interface, 2014, 11, 20140858.	1.5	70
86	Comparison of Ball Bearing Model Performance With and Without Centrifugal and Gyroscopic Forces. , 2014, , .		1
87	Behavior of thin rectangular ANCF shell elements in various mesh configurations. Nonlinear Dynamics, 2014, 78, 1277-1291.	2.7	21
88	Comparison of the absolute nodal coordinate and geometrically exact formulations for beams. Multibody System Dynamics, 2014, 32, 67-85.	1.7	47
89	A study of moderately thick quadrilateral plate elements based on the absolute nodal coordinate formulation. Multibody System Dynamics, 2014, 31, 309-338.	1.7	36
90	Transmission configuration effect on total efficiency of Electric Vehicle powertrain. , 2014, , .		6

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91	A Formal Text Description of Mechanisms for Their Automated Synthesis. , 2014, , .		0
92	Comparison between ANCF and B-spline surfaces. Multibody System Dynamics, 2013, 30, 119-138.	1.7	29
93	Helix beam model of a coil spring including twisting effect to capture lateral deformation. International Journal of Precision Engineering and Manufacturing, 2013, 14, 1615-1622.	1.1	2
94	Experimental verification of a dynamic model of a tube roll in terms of subcritical superharmonic vibrations. Mechanism and Machine Theory, 2013, 64, 53-66.	2.7	5
95	Review on the Absolute Nodal Coordinate Formulation for Large Deformation Analysis of Multibody Systems. Journal of Computational and Nonlinear Dynamics, 2013, 8, .	0.7	131
96	A thin plate element based on the combined arbitrary Lagrange–Euler and absolute nodal coordinate formulations. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2013, 227, 211-219.	0.5	7
97	Simple and Versatile Dynamic Model of Spherical Roller Bearing. International Journal of Rotating Machinery, 2013, 2013, 1-13.	0.8	31
98	Experimental Validation of Flexible Multibody Dynamics Beam Formulations. , 2013, , .		0
99	Crane Operators Training Based on the Real-Time Multibody Simulation. , 2013, , 213-229.		4
100	A Simple Multibody Dynamic Model of Cross-Country Ski-Skating. , 2013, , .		1
101	The Simplest 3- and 4-Noded Fully-Parameterized ANCF Plate Elements. , 2012, , .		6
102	Pilot study on proximal femur strains during locomotion and fall-down scenario. Multibody System Dynamics, 2012, 28, 239-256.	1.7	5
103	Preface for the special issue: IMSD. Multibody System Dynamics, 2012, 27, 1-2.	1.7	2
104	Extended Digital Nomenclature Code for Description of Complex Finite Elements and Generation of New Elements. Mechanics Based Design of Structures and Machines, 2011, 39, 229-252.	3.4	14
105	On Pure-Bending Non-Linear Plate Elements With Developable Surfaces. , 2011, , .		0
106	Flexible multibody approach in forward dynamic simulation of locomotive strains in human skeleton withâflexible lower body bones. Multibody System Dynamics, 2011, 25, 395-409.	1.7	27
107	The use of the flexible multibody approach for lower body skeletal loading analysis. Procedia IUTAM, 2011, 2, 93-100.	1.2	2
108	Efficient coupling of multibody software with numerical computing environments and block diagram simulators. Multibody System Dynamics, 2010, 24, 237-253.	1.7	17

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109	Beam Elements with Trapezoidal Cross Section Deformation Modes Based on the Absolute Nodal Coordinate Formulation. AIP Conference Proceedings, 2010, , .	0.3	21
110	Generation of Matrices of a Finite Element by its Code dncm. , 2010, , .		0
111	A formal procedure and invariants of a transition fromÂconventional finite elements to the absolute nodal coordinate formulation. Multibody System Dynamics, 2009, 22, 323-339.	1.7	17
112	Electromagnetic and mechanical design aspects of a high-speed solid-rotor induction machine with no separate copper electric circuit in the megawatt range. Electrical Engineering, 2009, 91, 35-49.	1.2	15
113	Inclusion of Transverse Shear Deformation in a Beam Element Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2009, 4, .	0.7	8
114	Non-Linear Strain Description for Two-Dimensional Shear Deformable Beam Element Based on the Absolute Nodal Coordinate Formulation. , 2009, , .		0
115	Shear Correction for Thin Plate Finite Elements Based on the Absolute Nodal Coordinate Formulation. , 2009, , .		2
116	A Dynamic Simulation of a Human Gait Using the Hybrid Muscle Model and a QCT-Based Flexible Tibia. , 2009, , .		0
117	A geometrically exact beam element based onÂtheÂabsolute nodal coordinate formulation. Multibody System Dynamics, 2008, 20, 359-384.	1.7	104
118	Two Simple Triangular Plate Elements Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2008, 3, .	0.7	41
119	Dynamic Analysis of Rotor System With Misaligned Retainer Bearings. Journal of Tribology, 2008, 130, .	1.0	13
120	Large Deformation Triangular Plate Elements for Multibody Problems. , 2007, , .		4
121	Dynamic simulation of a flexible rotor during drop on retainer bearings. Journal of Sound and Vibration, 2007, 306, 601-617.	2.1	35
122	A new locking-free shear deformable finite element based on absolute nodal coordinates. Nonlinear Dynamics, 2007, 50, 249-264.	2.7	90
123	A Procedure for the Inclusion of Transverse Shear Deformation in a Beam Element Based on the Absolute Nodal Coordinate Formulation. , 2007, , .		2
124	Multibody Approach for Model-Based Fault Detection of a Reel. Journal of Computational and Nonlinear Dynamics, 2006, 1, 116-122.	0.7	0
125	Multibody System Modeling of Leaf Springs. JVC/Journal of Vibration and Control, 2004, 10, 1601-1638.	1.5	33
126	Using the Simulation Model for Predicting Fatigue Stresses of a Log Crane. , 0, , .		0

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127	Electric Vehicle Energy Consumption Simulation by Modeling the Efficiency of Driveline Components. SAE International Journal of Commercial Vehicles, 0, 9, 31-39.	0.4	11
128	Numerical analysis of the magnetic shape memory effect based on the absolute nodal coordinate formulation. Acta Mechanica, 0, , 1.	1.1	2