Tamas Insperger

List of Publications by Year in descending order

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152 papers	5,437 citations	145106 33 h-index	100535 70 g-index
161 all docs	161 docs citations	161 times ranked	1804 citing authors

#	Article	IF	Citations
1	Critical parameters for the robust stabilization of the inverted pendulum with reaction delay: State feedback versus predictor feedback. International Journal of Robust and Nonlinear Control, 2022, 32, 9710-9722.	2.1	6
2	Conditions for stabilizability of timeâ€delay systems with realâ€rooted plant. International Journal of Robust and Nonlinear Control, 2022, 32, 3206-3224.	2.1	21
3	Virtual stick balancing: skill development in Newtonian and Aristotelian dynamics. Journal of the Royal Society Interface, 2022, 19, 20210854.	1.5	1
4	On the admissible control-loop delay for the inverted pendulum subject to detuned PDA feedback. Journal of Sound and Vibration, 2022, 529, 116898.	2.1	6
5	Predictor feedback models for stick balancing with delay mismatch and sensory dead zones. Chaos, 2022, 32, 053108.	1.0	1
6	Critical delay as a measure for the difficulty of frontal plane balancing on rolling balance board. Journal of Biomechanics, 2022, 138, 111117.	0.9	0
7	Role of Delayed Feedback in Human Balancing. , 2022, , 3063-3068.		0
8	Calculation of the critical delay for the double inverted pendulum. JVC/Journal of Vibration and Control, 2021, 27, 356-364.	1.5	10
9	Parametric continuation algorithm for time-delay systems and bifurcation caused by multiple characteristic roots. Nonlinear Dynamics, 2021, 103, 3241-3253.	2.7	10
10	The effects of sensory quantization and control torque saturation on human balance control. Chaos, 2021, 31, 033145.	1.0	6
11	Rolling balance board of adjustable geometry as a tool to assess balancing skill and to estimate reaction time delay. Journal of the Royal Society Interface, 2021, 18, 20200956.	1.5	7
12	Response to perturbation during quiet standing resembles delayed state feedback optimized for performance and robustness. Scientific Reports, 2021, 11, 11392.	1.6	9
13	Robust Design of Connected Cruise Control Among Human-Driven Vehicles. IEEE Transactions on Intelligent Transportation Systems, 2020, 21, 749-761.	4.7	32
14	Robust stability of milling operations based on pseudospectral approach. International Journal of Machine Tools and Manufacture, 2020, 149, 103516.	6.2	25
15	Experimental estimation of tactile reaction delay during stick balancing using cepstral analysis. Mechanical Systems and Signal Processing, 2020, 138, 106554.	4.4	10
16	Parametric Study of Changes in Human Balancing Skill byÂRepeated Balancing Trials on Rolling Balance Board. Periodica Polytechnica, Mechanical Engineering, 2020, 64, 317-327.	0.8	4
17	Establishing metrics and control laws for the learning process: ball and beam balancing. Biological Cybernetics, 2020, 114, 83-93.	0.6	9
18	Pseudospectral method for assessing stability robustness for linear timeâ€periodic delayed dynamical systems. International Journal for Numerical Methods in Engineering, 2020, 121, 3505-3528.	1.5	10

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19	Towards an MID-based Delayed Design for Arbitrary-order Dynamical Systems with a Mechanical Application. IFAC-PapersOnLine, 2020, 53, 4375-4380.	0.5	7
20	Comparison of Pixel-based Position Input and Direct Acceleration Input for Virtual Stick Balancing Tests. Periodica Polytechnica, Mechanical Engineering, 2020, 64, 120-127.	0.8	2
21	Modelling Stick Balancing by Applying Switching-Type Control. , 2020, , .		0
22	Estimation of Reaction Time During Human Balancing on Rolling Balance Board Based on Mechanical Models. , 2020, , .		0
23	Electro-Mechanical Model of a Two-Wheeled Vehicle Balancing a Passive Human Subject. , 2019, , .		1
24	Acting together, destabilizing influences can stabilize human balance. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20180126.	1.6	18
25	The Smith predictor, the modified Smith predictor, and the finite spectrum assignment: A comparative study. , 2019, , 209-226.		8
26	Identification of Sensory Dead Zones in Human Balancing on Balance Board. , 2019, , .		1
27	Stable periodic motion of a controlled segmented leg model of pedal locomotion with inelastic ground-foot collision. Nonlinear Dynamics, 2019, 97, 1945-1958.	2.7	3
28	Virtual stick balancing: sensorimotor uncertainties related to angular displacement and velocity. Royal Society Open Science, 2019, 6, 191006.	1.1	6
29	Closed-form estimations of the bistable region in metal cutting via the method of averaging. International Journal of Non-Linear Mechanics, 2019, 112, 49-56.	1.4	11
30	Control Force Recalculation for Balancing Problems. International Journal of Structural Stability and Dynamics, 2019, 19, 1941010.	1.5	1
31	Symmetry breaking in milling dynamics. International Journal of Machine Tools and Manufacture, 2019, 139, 37-59.	6.2	42
32	Periodic Control in a Stick Balancing Problem. , 2019, , .		0
33	Bifurcation analysis of nonlinear timeâ€periodic timeâ€delay systems via semidiscretization. International Journal for Numerical Methods in Engineering, 2018, 115, 57-74.	1.5	12
34	Saturation limits the contribution of acceleration feedback to balancing against reaction delay. Journal of the Royal Society Interface, 2018, 15, 20170771.	1.5	25
35	Application of Predictor Feedback to Compensate Time Delays in Connected Cruise Control. IEEE Transactions on Intelligent Transportation Systems, 2018, 19, 545-559.	4.7	54
36	Numerical methods for the stability of time-periodic hybrid time-delay systems with applications. Applied Mathematical Modelling, 2018, 57, 142-162.	2.2	5

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37	Retarded, neutral and advanced differential equation models for balancing using an accelerometer. International Journal of Dynamics and Control, 2018, 6, 694-706.	1.5	7
38	Acceleration helps in skateboarding at high speeds. International Journal of Dynamics and Control, 2018, 6, 982-989.	1.5	1
39	Mathematical models for balancing tasks on a see-saw with reaction time delay. IFAC-PapersOnLine, 2018, 51, 288-293.	0.5	1
40	Human balancing on rolling balance board in the frontal plane. IFAC-PapersOnLine, 2018, 51, 300-305.	0.5	5
41	Transient stabilization of an inverted pendulum with digital control. IFAC-PapersOnLine, 2018, 51, 197-202.	0.5	3
42	On the stability of two-wheeled vehicle balancing passive human subjects. IFAC-PapersOnLine, 2018, 51, 337-342.	0.5	3
43	Simplest mechanical model of stable hopping with inelastic ground-foot impact. IFAC-PapersOnLine, 2018, 51, 372-377.	0.5	1
44	Quantification of uncertainty in machining operations based on probabilistic and robust approaches. Procedia CIRP, 2018, 77, 82-85.	1.0	6
45	On process damping induced by vibration-dependency of cutting direction in milling. Procedia CIRP, 2018, 77, 171-174.	1.0	2
46	Stability analysis in milling by taking into account the influence of forced vibrations on the actual tool-workpiece engagement conditions. Procedia CIRP, 2018, 77, 453-456.	1.0	3
47	Extending the limits of stabilizability of systems with feedback delay via fractional-order PD controllers. IFAC-PapersOnLine, 2018, 51, 265-270.	0.5	4
48	Parametric study of virtual stick balancing based on a delayed PD model. IFAC-PapersOnLine, 2018, 51, 271-276.	0.5	1
49	Microchaos in human postural balance: Sensory dead zones and sampled time-delayed feedback. Physical Review E, 2018, 98, 022223.	0.8	18
50	Four-Bar Mechanism Substitution for Balance Board Experiments: A Parametric Study. Springer Proceedings in Mathematics and Statistics, 2018, , 473-484.	0.1	0
51	Spectral element method for stability analysis of milling processes with discontinuous time-periodicity. International Journal of Advanced Manufacturing Technology, 2017, 89, 2503-2514.	1.5	19
52	Robust stability analysis of machining operations. International Journal of Advanced Manufacturing Technology, 2017, 88, 45-54.	1.5	22
53	Extension of process damping to milling with low radial immersion. International Journal of Advanced Manufacturing Technology, 2017, 89, 2545-2556.	1.5	23
54	To Delay or Not to Delayâ€”Stability of Connected Cruise Control. Advances in Delays and Dynamics, 2017, , 263-282.	0.4	4

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55	Prediction of robust stability boundaries for milling operations with extended multi-frequency solution and structured singular values. Journal of Manufacturing Processes, 2017, 30, 281-289.	2.8	21
56	Robust controller design for turning operations based on measured frequency response functions. IFAC-PapersOnLine, 2017, 50, 7103-7108.	0.5	3
57	Quantization improves stabilization of dynamical systems with delayed feedback. Chaos, 2017, 27, 114306.	1.0	16
58	Stick Balancing with Feedback Delay, Sensory Dead Zone, Acceleration and Jerk Limitation. Procedia IUTAM, 2017, 22, 59-66.	1.2	5
59	On the analysis of the double Hopf bifurcation in machining processes via centre manifold reduction. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2017, 473, 20170502.	1.0	20
60	Dynamics of Cutting Near Double Hopf Bifurcation. Procedia IUTAM, 2017, 22, 123-130.	1.2	4
61	Stabilizability of Mechanical Systems Subjected to Digital PIDA Control. Procedia IUTAM, 2017, 22, 131-138.	1.2	1
62	Estimation of Human Reaction Time Delay During Balancing on Balance Board. , 2017, , .		7
63	On the robust stabilizability of unstable systems with feedback delay by finite spectrum assignment. JVC/Journal of Vibration and Control, 2016, 22, 649-661.	1.5	19
64	Extension of Stability Radius to Neuromechanical Systems With Structured Real Perturbations. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2016, 24, 1235-1242.	2.7	15
65	Robust Stability Analysis for Connected Vehicle Systems. IFAC-PapersOnLine, 2016, 49, 165-170.	0.5	8
66	Estimation of Safe Chatter-free Technological Parameter Regions for Machining Operations. Procedia CIRP, 2016, 46, 464-467.	1.0	2
67	Robust Stability of Machining Operations in Case of Uncertain Frequency Response Functions. Procedia CIRP, 2016, 46, 151-154.	1.0	3
68	A pseudospectral tau approximation for time delay systems and its comparison with other weightedâ€residualâ€type methods. International Journal for Numerical Methods in Engineering, 2016, 108, 588-613.	1.5	16
69	Control at stability's edge minimizes energetic costs: expert stick balancing. Journal of the Royal Society Interface, 2016, 13, 20160212.	1.5	50
70	Demonstration of the sensitivity of the Smith predictor to parameter uncertainties using stability diagrams. International Journal of Dynamics and Control, 2016, 4, 384-392.	1.5	5
71	Estimation of the Bistable Zone for Machining Operations for the Case of a Distributed Cutting-Force Model. Journal of Computational and Nonlinear Dynamics, 2016, 11, .	0.7	14
72	State-dependent distributed-delay model of orthogonal cutting. Nonlinear Dynamics, 2016, 84, 1147-1156.	2.7	12

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73	Extension of the spectral element method for stability analysis of time-periodic delay-differential equations with multiple and distributed delays. Communications in Nonlinear Science and Numerical Simulation, 2016, 35, 177-189.	1.7	24
74	Analytical estimations of limit cycle amplitude for delay-differential equations. Electronic Journal of Qualitative Theory of Differential Equations, 2016, , 1-10.	0.2	7
75	The Influence of Structural Parameters on the Stability of Blade-Casing Interactions in Turbomachinery. IFAC-PapersOnLine, 2015, 48, 69-74.	0.5	2
76	Predictor Design for Connected Cruise Control Subject to Packet Loss. IFAC-PapersOnLine, 2015, 48, 428-433.	0.5	8
77	A least-square spectral element method for stability analysis of time delay systemsâˆ—â€—This work was supported by the Hungarian National Science Foundation under grant OTKA-K105433.. IFAC-PapersOnLine, 2015, 48, 382-385.	0.5	1
78	State-Dependent, Non-Smooth Model of Chatter Vibrations in Turning. , 2015, , .		3
79	The Effect of Non-Symmetric FRF on Machining: A Case Study. , 2015, , .		8
80	Investigating Multiscale Phenomena in Machining: The Effect of Cutting-Force Distribution Along the Toolâ€™s Rake Face on Process Stability. , 2015, , .		2
81	Regenerative delay, parametric forcing and machine tool chatter: A review. IFAC-PapersOnLine, 2015, 48, 322-327.	0.5	24
82	On the Effect of Distributed Regenerative Delay on the Stability Lobe Diagrams of Milling Processes. Periodica Polytechnica, Mechanical Engineering, 2015, 59, 126-136.	0.8	8
83	On the Approximation of Delayed Systems by Taylor Series Expansion. Journal of Computational and Nonlinear Dynamics, 2015, 10, .	0.7	26
84	Semi-discretization and the time-delayed PDA feedback control of human balance. IFAC-PapersOnLine, 2015, 48, 93-98.	0.5	8
85	Sensitivity of stability charts with respect to modal parameter uncertainties for turning operations. IFAC-PapersOnLine, 2015, 48, 63-68.	0.5	2
86	Semidiscretization for Time-Delayed Neural Balance Control. SIAM Journal on Applied Dynamical Systems, 2015, 14, 1258-1277.	0.7	19
87	Chatter in interrupted turning with geometrical defects: an industrial case study. International Journal of Advanced Manufacturing Technology, 2014, 75, 45-56.	1.5	11
88	Stabilizability diagram for turning processes subjected to digital PD control. International Journal of Dynamics and Control, 2014, 2, 46-54.	1.5	11
89	Sensory uncertainty and stick balancing at the fingertip. Biological Cybernetics, 2014, 108, 85-101.	0.6	61
90	Cylindrical milling tools: Comparative real case study for process stability. CIRP Annals - Manufacturing Technology, 2014, 63, 385-388.	1.7	48

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91	The mechanical modeling of human balancing using PIDA control. Biomechanica Hungarica, 2014, , .	0.1	1
92	On the Stabilizability of the Delayed Inverted Pendulum Controlled by Finite Spectrum Assignment in Case of Parameter Uncertainties. , 2013, , .		1
93	The Magnus Expansion for Periodic Delay Differential Equations. , 2013, , .		0
94	Acceleration feedback improves balancing against reflex delay. Journal of the Royal Society Interface, 2013, 10, 20120763.	1.5	101
95	Time Domain Analysis of the Smith Predictor in Case of Parameter Uncertainties: A Case Study. , 2013, , .		2
96	Act-and-wait control of discrete systems with random delays. , 2012, , .		5
97	Stability of delayed oscillators subjected to digital PD control*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 73-78.	0.4	1
98	Stability of turning processes subjected to digital PD control. Periodica Polytechnica, Mechanical Engineering, 2012, 56, 33.	0.8	9
99	Stick balancing with reflex delay in case of parametric forcing. Communications in Nonlinear Science and Numerical Simulation, 2011, 16, 2160-2168.	1.7	23
100	Prediction of multiple dominant chatter frequencies in milling processes. International Journal of Machine Tools and Manufacture, 2011, 51, 457-464.	6.2	56
101	SUPPRESSION OF PERIOD DOUBLING CHATTER IN HIGH-SPEED MILLING BY SPINDLE SPEED VARIATION. Machining Science and Technology, 2011, 15, 153-171.	1.4	39
102	Semi-Discretization for Time-Delay Systems. Applied Mathematical Sciences (Switzerland), 2011, , .	0.4	271
103	Balancing using accelerometers and equations with advanced arguments. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 103-108.	0.4	0
104	Analysis of directional factors in milling: importance of multi-frequency calculation and of the inclusion of the effect of the helix angle. International Journal of Advanced Manufacturing Technology, 2010, 47, 535-542.	1.5	33
105	On the stability of high-speed milling with spindle speed variation. International Journal of Advanced Manufacturing Technology, 2010, 48, 883-895.	1.5	113
106	Full Characterization of Act-and-wait Control for First-order Unstable Lag Processes. JVC/Journal of Vibration and Control, 2010, 16, 1209-1233.	1.5	24
107	On the dimension reduction of systems with feedback delay by act-and-wait control. IMA Journal of Mathematical Control and Information, 2010, 27, 457-473.	1.1	16
108	Feasibility Study of Optical Detection of Chatter Vibration During Milling. International Journal of Optomechatronics, 2010, 4, 195-214.	3.3	8

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109	Delayed feedback of sampled higher derivatives. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 469-482.	1.6	20
110	Full-discretization and semi-discretization for milling stability prediction: Some comments. International Journal of Machine Tools and Manufacture, 2010, 50, 658-662.	6.2	122
111	Increasing the Accuracy of Digital Force Control Process Using the Act-and-Wait Concept. IEEE/ASME Transactions on Mechatronics, 2010, 15, 291-298.	3.7	25
112	Act-and-Wait Control Concept for a Force Control Process with Delayed Feedback. , 2009, , 133-142.		1
113	SURFACE PROPERTIES OF THE MACHINED WORKPIECE FOR HELICAL MILLS. Machining Science and Technology, 2009, 13, 227-245.	1.4	53
114	Systems with Periodic Coefficients and Periodically Varying Delays: Semidiscretization-Based Stability Analysis. , 2009, , 131-153.		19
115	Increased Stability of Low-Speed Turning Through a Distributed Force and Continuous Delay Model. Journal of Computational and Nonlinear Dynamics, 2009, 4, .	0.7	24
116	On the higher-order semi-discretizations for periodic delayed systems. Journal of Sound and Vibration, 2008, 313, 334-341.	2.1	180
117	On the chatter frequencies of milling processes with runout. International Journal of Machine Tools and Manufacture, 2008, 48, 1081-1089.	6.2	84
118	Criticality of Hopf bifurcation in state-dependent delay model of turning processes. International Journal of Non-Linear Mechanics, 2008, 43, 140-149.	1.4	84
119	Brockett problem for systems with feedback delay. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 11491-11496.	0.4	4
120	Act-and-wait control concept for discrete-time systems with feedback delay. IET Control Theory and Applications, 2007, 1, 553-557.	1.2	41
121	Robust Time-Periodic Control of Time-Delayed Systems. , 2007, , 343-352.		2
122	Act-and-wait concept for continuous-time control systems with feedback delay. IEEE Transactions on Control Systems Technology, 2006, 14, 974-977.	3.2	110
123	Approximate stability charts for milling processes using semi-discretization. Applied Mathematics and Computation, 2006, 174, 51-73.	1.4	38
124	Stability of time-periodic and delayed systems â€" a route to act-and-wait control. Annual Reviews in Control, 2006, 30, 159-168.	4.4	79
125	Analysis of the Influence of Mill Helix Angle on Chatter Stability. CIRP Annals - Manufacturing Technology, 2006, 55, 365-368.	1.7	115
126	State-dependent delay in regenerative turning processes. Nonlinear Dynamics, 2006, 47, 275-283.	2.7	87

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127	Machine Tool Chatter and Surface Location Error in Milling Processes. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2006, 128, 913-920.	1.3	88
128	On stability prediction for milling. International Journal of Machine Tools and Manufacture, 2005, 45, 769-781.	6.2	174
129	On Stability and Dynamics of Milling at Small Radial Immersion. CIRP Annals - Manufacturing Technology, 2005, 54, 357-362.	1.7	34
130	DELAY, PARAMETRIC EXCITATION, AND THE NONLINEAR DYNAMICS OF CUTTING PROCESSES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2005, 15, 2783-2798.	0.7	101
131	ON STABILITY PREDICTION FOR LOW RADIAL IMMERSION MILLING. Machining Science and Technology, 2005, 9, 117-130.	1.4	21
132	Nonlinear Dynamics of High-Speed Millingâ€"Analyses, Numerics, and Experiments. Journal of Vibration and Acoustics, Transactions of the ASME, 2005, 127, 197-203.	1.0	60
133	Vibration Frequencies in High-Speed Milling Processes or a Positive Answer to Davies, Pratt, Dutterer and Burns. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2004, 126, 481-487.	1.3	29
134	Comparison of zeroth- and first-order semi-discretizations for the delayed Mathieu equation. , 2004, , .		0
135	Stability Analysis of Turning With Periodic Spindle Speed Modulation Via Semidiscretization. JVC/Journal of Vibration and Control, 2004, 10, 1835-1855.	1.5	125
136	Updated semi-discretization method for periodic delay-differential equations with discrete delay. International Journal for Numerical Methods in Engineering, 2004, 61, 117-141.	1.5	561
137	Optimization of digital control with delay by periodic variation of the gain parameters. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2004, 37, 145-150.	0.4	4
138	Control of separation point in periodic flows including delay effects. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2004, 37, 451-455.	0.4	0
139	Multiple chatter frequencies in milling processes. Journal of Sound and Vibration, 2003, 262, 333-345.	2.1	207
140	Stability of up-milling and down-milling, part 1: alternative analytical methods. International Journal of Machine Tools and Manufacture, 2003, 43, 25-34.	6.2	253
141	Stability of up-milling and down-milling, part 2: experimental verification. International Journal of Machine Tools and Manufacture, 2003, 43, 35-40.	6.2	154
142	Stability of the Damped Mathieu Equation With Time Delay. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2003, 125, 166-171.	0.9	46
143	Global Attractors of High-Speed Milling: Analyses, Numerics and Experiments. , 2003, , 2231.		0
144	Effects of Radial Immersion and Cutting Direction on Chatter Instability in End-Milling. , 2002, , 351.		71

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145	Stability chart for the delayed Mathieu equation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2002, 458, 1989-1998.	1.0	80
146	Semi-discretization method for delayed systems. International Journal for Numerical Methods in Engineering, 2002, 55, 503-518.	1.5	544
147	Semi-Discretization of Delayed Dynamical Systems. , 2001, , .		29
148	Comparison of the Dynamics of Low Immersion Milling and Cutting With Varying Spindle Speed. , 2001, , .		6
149	Remote Control of Periodic Robot Motion. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2000, , 197-203.	0.3	17
150	Stability of High-Speed Milling. , 2000, , .		26
151	Control of Chatter by Spindle Speed Variation in High-Speed Milling. Advanced Materials Research, 0, 112, 179-186.	0.3	12
152	MECHANICAL MODEL FOR HUMAN BALANCING ON ROLLING BALANCE BOARD. Acta Polytechnica CTU Proceedings, 0, 18, 32.	0.3	2