

# Dr. Tamás Molnár

Department of Mechanical and Civil Engineering, California Institute of Technology  
212 Gates-Thomas Building, 1200 E California Blvd, Pasadena, CA 91125, USA  
+1 (734) 576-6942  
tmolnar@caltech.edu  
<https://www.its.caltech.edu/~tmolnar/>

## Positions

2020 – **Postdoctoral Scholar Research Associate** – California Institute of Technology  
2018 – 2020 **Postdoctoral Scholar and Intermittent Lecturer** – University of Michigan, Ann Arbor  
2018 **Assistant Lecturer** – Budapest University of Technology and Economics

## Education

2015 – 2018 **PhD in Mechanical Engineering** – Budapest University of Technology and Economics  
2013 – 2015 **MSc in Mechanical Engineering Modelling** – Budapest Univ. of Technology and Econ.  
2009 – 2013 **BSc in Mechatronics Engineering** – Budapest University of Technology and Economics

## Organization

### *Co-program editor:*

*17th IFAC Workshop on Time Delay Systems* (September 27-30, 2022, Montreal, Canada)

### *Technical team member, reception desk:*

*40th Southern California Control Workshop* (October 21, 2022, Pasadena, CA, USA)

*3rd IAVSD Workshop on Dynamics of Road Vehicles: Connected and Automated Vehicles* (April 28-30, 2019, Ann Arbor, MI, USA)

*14th IFAC Workshop on Time Delay Systems* (June 28-30, 2018, Budapest, Hungary)

*8th CIRP Conference on High Performance Cutting* (June 25-27, 2018, Budapest, Hungary)

*9th European Nonlinear Dynamics Conference* (June 25-30, 2017, Budapest, Hungary)

### *Minisymposium organizer:*

*Time Delays in Vehicle and Traffic Systems*

17th IFAC Workshop on Time Delay Systems (September 27-30, 2022, Montreal, Canada)

*Safety of Time Delay Systems*

16th IFAC Workshop on Time Delay Systems (September 29-October 1, 2021, Guangzhou, China)

## Peer Reviews and Editor Work

### *Reviews:*

reviewed over 100 journal or conference proceedings publications

including: *Nonlinear Dynamics*

*Transportation Research Part C*

*IEEE Transactions on Intelligent Transportation Systems*

*IEEE Control Systems Letters*

*IEEE Conference on Decision and Control*

*American Control Conference*

*IFAC Workshop on Time Delay Systems*

### *International Program Committee member (associate editor):*

*17th IFAC Workshop on Time Delay Systems* (September 27-30, 2022, Montreal, Canada)

## Memberships

2021 – Member of the IEEE Control Systems Society (IEEE-CSS)

## Teaching

### *Courses taught:*

Recitations for graduate students @ *University of Michigan, Ann Arbor:*

Dynamics and Control of Connected Vehicles	ME599 / CEE501 / ROB599 / ISD599	spring 2019
--	-------------------------------------	-------------

Recitations for undergraduate students @ *Budapest University of Technology and Economics:*

Statics	BMEGEMMBXM1	fall 2017
Strength of Materials	BMEGEMMAGM2 BMEGEMMBXM2	fall 2015, spring 2017, spring 2018
Rigid Body Dynamics	BMEGEMMAGM3	spring 2015, fall 2015, fall 2016
Vibration Theory	BMEGEMMAGM4	spring 2016
Finite Element Analysis	BMEGEMMAGM5 BMEGEMMAGMV	spring 2015, fall 2015, spring 2016, fall 2016, spring 2018

Course material preparation @ *University of Michigan, Ann Arbor:*

Dynamics and Control of Connected Vehicles	CCET online course	summer 2019
--	--------------------	-------------

### *Mentored students:*

Albert Li, PhD in ME, summer 2022 – , California Institute of Technology

Anil Alan, PhD in ME, fall 2021 – , University of Michigan, Ann Arbor

Ryan Cosner, PhD in ME, fall 2020 – spring 2022, California Institute of Technology

Wyatt Ubellacker, PhD in ME, fall 2020 – spring 2022, California Institute of Technology

Andrew Singletary, PhD in ME, fall 2020 – spring 2022, California Institute of Technology

Minghao Shen, PhD in ME, fall 2019 – fall 2020, University of Michigan, Ann Arbor

Hao Wang, PhD in ME, spring 2019 – summer 2020, University of Michigan, Ann Arbor

Sicong Guo, MSc in ME, summer 2021 – summer 2022, University of Michigan, Ann Arbor

Anand Singh, MSc in ME, summer 2020 – fall 2020, University of Michigan, Ann Arbor

Xunbi Ji, MSc in ME, summer 2019 – fall 2020, University of Michigan, Ann Arbor

Chin-Wei Lin, MSc in ROB, summer 2019 – summer 2020, University of Michigan, Ann Arbor

Johaam Chacko Matthew, MSc in ME, summer 2019 – fall 2019, University of Michigan, Ann Arbor

John Yu, BSc in ME, fall 2022 – , University of Michigan, Ann Arbor

Lejun Jiang, BSc in ME, summer 2019 – summer 2021, University of Michigan, Ann Arbor

Adam Farkas, BSc in ME, fall 2017, Budapest University of Technology and Economics

## Awards and Scholarships

2019	Scholarship of the Rosztoczy Foundation – 12 months
2018	Hungarian National Eötvös Scholarship – 4 months
2018	Excellent Teacher of the Faculty of Mechanical Engineering Award
2017 fall	3rd Best Teacher of the University (student education quality survey)
2017 spring	2nd Best Teacher of the University (student education quality survey)
2016 – 2017	Scholarship of the New National Excellence Program – 10 months
2016 spring	2nd Best Teacher of the University (student education quality survey)
2015	2nd Prize at the National Scientific Conference of Students
2014	Scholarship of the Budapest University of Technology and Economics
2014	Scholarship of the Faculty of Mechanical Engineering – 2 times
2013 – 2014	Distinguished Scholarship of the Hungarian Republic – 2 times
2013	1st and 2nd Prize at the Scientific Conference of Students and Distinguished Prize of the Pro Progressio Foundation

## Research Project Participation

2022 –	<b>Safety-Critical Control of Fixed-Wing Aircrafts</b> Air Force Research Laboratory – NodeIn – California Institute of Technology
2020 –	<b>Distillation Column Inspection by Legged Robots</b> Dow Chemical – NASA JPL – California Institute of Technology
2020 – 2022	<b>Obstacle Avoidance and Control of Flying Robots</b> Aerovironment – California Institute of Technology
2020 – 2022	<b>Model Predictive Control for Connected Automated Vehicles</b> Clemson University – University of Michigan
2020	<b>Safety-Critical Control in Epidemiology</b> California Institute of Technology – University of Michigan
2020	<b>Traffic Forecasting with Neural Networks</b> Northeastern University – UC San Diego – University of Michigan
2020	<b>Cellular V2X Infrastructure Deployment on Highways</b> Center for Connected and Automated Transportation – University of Michigan
2019 – 2020	<b>Energy-Efficient Control of Connected Heavy-Duty Vehicles</b> Navistar – University of Michigan
2019 – 2020	<b>Cooperative Perception for Connected Vehicles</b> Toyota InfoTechnology Center – University of Michigan
2018 – 2020	<b>Traffic Forecasting for Connected Vehicles</b> Ford Research and Innovation Center – University of Michigan
2015 – 2018	<b>Dynamics and Stability of Machine Tool Vibrations</b> Budapest University of Technology and Economics, ERC Advanced Grant

## Publications

### Metrics:

Cumulative impact factor: 73.45

Web of Science: citations: 232, h-index: 10

Google Scholar: citations: 459, h-index: 13

### Book:

[B01] Orosz G, Molnár TG, Dynamics and Control of Connected Vehicles, Springer, New York. Contracted, expected to be published in 2023.

### Journal papers:

#### Under review:

- [J24] Alan A, Molnar TG, Das E, Ames AD, Orosz G, Disturbance Observers for Robust Safety-critical Control with Control Barrier Functions, *IEEE Control Systems Letters*, under review (2022). [[arXiv](#)]
- [J23] Shen M, Dollar RA, Molnar TG, He CR, Vahidi A, Orosz G, Energy-efficient Reactive and Predictive Connected Cruise Control, *Transportation Research Part C: Emerging Technologies*, under review (2022). [[arXiv](#)]
- [J22] Shen M, He CR, Molnar TG, Bell AH, Orosz G, Energy-efficient Connected Cruise Control with Lean Penetration of Connected Vehicles, *IEEE Transactions on Intelligent Transportation Systems*, under review (2022). [[arXiv](#)]
- [J21] Kiss AK, Molnar TG, Ames AD, Orosz G, Control Barrier Functionals: Safety-critical Control for Time Delay Systems, *International Journal of Robust and Nonlinear Control*, under review (2022). [[arXiv](#)]
- [J20] Molnar TG, Kiss AK, Ames AD, Orosz G, Safety-Critical Control with Input Delay in Dynamic Environment, *IEEE Transactions on Control Systems Technology*, under review (2022). [[arXiv](#)]

#### Published:

- [J19] Singletary A, Guffey W, Molnar TG, Sinnet R, Ames AD, Safety-Critical Manipulation for Collision-Free Food Preparation, *IEEE Robotics and Automation Letters*, **7**(4):10954-10961 (2022). [[DOI](#)]
- [J18] Wang HM, Avedisov SS, Molnár TG, Sakr AH, Altintas O, Orosz G, Conflict Analysis for Cooperative Maneuvering with Status and Intent Sharing via V2X Communication, *IEEE Transactions on Intelligent Vehicles*, published online (2022). [[DOI](#)]
- [J17] Molnar TG, Cosner RK, Singletary AW, Ubellacker W, Ames AD, Model-Free Safety-Critical Control for Robotic Systems, *IEEE Robotics and Automation Letters*, **7**(2):944-951 (2022). [[DOI](#)]
- [J16] Jiang L, Molnár TG, Orosz G, On the deployment of V2X roadside units for traffic prediction, *Transportation Research Part C: Emerging Technologies*, **129**:103238 (2021). [[DOI](#)]
- [J15] Molnár TG, Upadhyay D, Hopka M, Van Nieuwstadt M, Orosz G, Delayed Lagrangian Continuum Models for On-Board Traffic Prediction, *Transportation Research Part C: Emerging Technologies*, **123**:102991 (2021). [[DOI](#)]
- [J14] Molnár TG, Singletary AW, Orosz G, Ames AD, Safety-Critical Control of Compartmental Epidemiological Models With Measurement Delays, *IEEE Control Systems Letters*, **5**(5):1537-1542 (2021). [[DOI](#)]
- [J13] Ames AD, Molnár TG, Singletary AW, Orosz G, Safety-Critical Control of Active Interventions for COVID-19 Mitigation, *IEEE Access*, **8**:188454-188474 (2020). [[DOI](#)]
- [J12] Dombovari Z, Iglesias A, Molnar TG, Habib G, Munoa J, Kuske R, Stepan G, Experimental observations on unsafe zones in milling processes, *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **377**(2153):20180125 (2019). [[DOI](#)]
- [J11] Molnar TG, Berezvai Sz, Kiss AK, Bachrathy D, Stepan G, Experimental investigation of dynamic chip formation in orthogonal cutting, *International Journal of Machine Tools and Manufacture*, **145**:103429 (2019). [[DOI](#)]
- [J10] Molnar TG, Insperger T, Stepan G, Closed-form estimations of the bistable region in metal cutting via the method of averaging, *International Journal of Non-Linear Mechanics*, **112**:49-56 (2019). [[DOI](#)]
- [J09] Molnar TG, Dombovari Z, Insperger T, Stepan G, Bifurcation analysis of nonlinear time-periodic time-delay systems via semidiscretization, *International Journal for Numerical Methods in Engineering*, **115**(1):57-74 (2018). [[DOI](#)]
- [J08] Molnár TG, Qin WB, Insperger T, Orosz G, Application of predictor feedback to compensate time delays in connected cruise control, *IEEE Transactions on Intelligent Transportation Systems*, **19**(2):545-559 (2018). [[DOI](#)]
- [J07] Molnar TG, Dombovari Z, Insperger T, Stepan G, 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*, **473**(2207):20170502 (2017). [[DOI](#)]
- [J06] Molnár TG, Insperger T, Bachrathy D, Stépán G, Extension of process damping to milling with low radial immersion, *International Journal of Advanced Manufacturing Technology*, **89**(9):2545-2556 (2017). [[DOI](#)]

- [J05] Molnár TG, Insperger T, Stépán G, Analytical estimations of limit cycle amplitude for delay-differential equations, *Electronic Journal of Qualitative Theory of Differential Equations*, **2016(77)**:1-10 (2016). [[DOI](#)]
- [J04] Molnar TG, Insperger T, On the robust stabilizability of unstable systems with feedback delay by finite spectrum assignment, *Journal of Vibration and Control*, **22(3)**:649-661 (2016). [[DOI](#)]
- [J03] Molnár TG, Insperger T, Hogan SJ, Stépán G, Estimation of the bistable zone for machining operations for the case of a distributed cutting-force model, *Journal of Computational and Nonlinear Dynamics*, **11(5)**:051008 (2016). [[DOI](#)]
- [J02] Molnár TG, Insperger T, Stépán G, State-dependent distributed-delay model of orthogonal cutting, *Nonlinear Dynamics*, **84(3)**:1147-1156 (2016). [[DOI](#)]
- [J01] Molnár TG, Insperger T, On the effect of distributed regenerative delay on the stability lobe diagrams of milling processes, *Periodica Polytechnica - Mechanical Engineering*, **59(3)**:126-136 (2015). [[DOI](#)]

### **Book chapters:**

- [C02] Molnár TG, Hopka M, Upadhyay D, Van Nieuwstadt M, Orosz G, Virtual Rings on Highways: Traffic Control by Connected Automated Vehicles, In *AI-enabled Technologies for Autonomous and Connected Vehicles* (eds. Murphey YL, Kolmanovsky I, and Watta P), Springer, 441-479 (2022). [[DOI](#)]
- [C01] Molnar TG, Hajdu D, Insperger T, The Smith predictor, the modified Smith predictor and the finite spectrum assignment: A comparative study, In *Stability, control and application of time-delay systems* (eds. Gao Q and Karimi HR), Elsevier, 209-226 (2019). [[DOI](#)]

### **Conference proceedings:**

- [P28] Taylor AJ, Ong P, Molnar TG, Ames AD, Safe Backstepping with Control Barrier Functions, *61st IEEE Conference on Decision and Control (CDC 2022)*, December 6-9, 2022, Cancun, Mexico, accepted. [[arXiv](#)]
- [P27] Molnar TG, Alan A, Kiss AK, Ames AD, Orosz G, Input-to-State Safety with Input Delay in Longitudinal Vehicle Control, *17th IFAC Workshop on Time Delay Systems (IFAC TDS 2022)*, September 27-30, 2022, Montreal, Canada.
- [P26] Cosner RK, Tucker M, Taylor AJ, Li K, Molnar TG, Ubellacker W, Alan A, Orosz G, Yue Y, Ames AD, Safety-Aware Preference-Based Learning for Safety-Critical Control, *4th Conference on Learning for Dynamics and Control (LADC 2022)*, June 23-24, 2022, Palo Alto, CA, USA, Proceedings of Machine Learning Research **168**:1020-1033 (2022).
- [P25] Molnár TG, Ji XA, Oh S, Takács D, Hopka M, Upadhyay D, Van Nieuwstadt M, Orosz G, On-Board Traffic Prediction for Connected Vehicles: Implementation and Experiments on Highways, *American Control Conference (ACC 2022)*, June 8-10, 2022, Atlanta, GA, USA, 1036-1041. [[DOI](#)]
- [P24] Cosner RK, Jimenez Rodriguez ID, Molnar TG, Ubellacker W, Yue Y, Ames AD, Bouman KL, Self-Supervised Online Learning for Safety-Critical Control using Stereo Vision, *IEEE International Conference on Robotics and Automation (ICRA 2022)*, May 23-27, 2022, Philadelphia, PA, USA, 11487-11493. [[DOI](#)]
- [P23] Ubellacker W, Csomay-Shanklin N, Molnar TG, Ames AD, Verifying Safe Transitions between Dynamic Motion Primitives on Legged Robots, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2021)*, September 27-October 1, Online (Prague, Czech Republic), 8477-8484. [[DOI](#)]
- [P22] Cosner RK, Singletary AW, Taylor AJ, Molnar TG, Bouman KL, Ames AD, Measurement-Robust Control Barrier Functions: Certainty in Safety with Uncertainty in State, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2021)*, September 27-October 1, Online (Prague, Czech Republic), 6286-6291. [[DOI](#)]
- [P21] Ji XA, Molnár TG, Gorodetsky AA, Orosz G, Bayesian Inference for Time Delay Systems with Application to Connected Automated Vehicles, *24th IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*, September 19-22, 2021, Indianapolis, IN, USA, 3259-3264. [[DOI](#)]
- [P20] Ji XA, Molnár TG, Avedisov SS, Orosz G, Learning the Dynamics of Time Delay Systems with Trainable Delays, *3rd Conference on Learning for Dynamics and Control (LADC 2021)*, June 7-8, 2021, Online (Zurich, Switzerland), Proceedings of Machine Learning Research **144**:930-942 (2021).
- [P19] Wong S, Jiang L, Walters R, Molnár TG, Orosz G, Yu R, Traffic Forecasting using Vehicle-to-Vehicle Communication, *3rd Conference on Learning for Dynamics and Control (LADC 2021)*, June 7-8, 2021, Online (Zurich, Switzerland), Proceedings of Machine Learning Research **144**:917-929 (2021).
- [P18] Kiss AK, Molnar TG, Bachrathy D, Ames AD, Orosz G, Certifying Safety for Nonlinear Time Delay Systems via Safety Functionals: A Discretization Based Approach, *American Control Conference (ACC 2021)*, May 25-28, 2021, Online (New Orleans, LA, USA), 1055-1060. [[DOI](#)]
- [P17] Shen M, Molnár TG, He CR, Bell AH, Hunkler M, Oppermann D, Zukouski R, Yan J, Orosz G, Saving Energy with Delayed Information in Connected Vehicle Systems, *American Control Conference (ACC 2021)*, May 25-28, 2021, Online (New Orleans, LA, USA), 1621-1626. [[DOI](#)]
- [P16] Dollar RA, Molnár TG, Vahidi A, Orosz G, MPC-Based Connected Cruise Control with Multiple Human Predecessors, *American Control Conference (ACC 2021)*, May 25-28, 2021, Online (New Orleans, LA, USA), 404-410. [[DOI](#)]
- [P15] Avedisov SS, Lin C-W, Molnár TG, Altintas O, Sakr AH, Orosz G, Perceived Safety: A New Metric for Evaluating Safety Benefits of Collective Perception for Connected Road Users, *IEEE Vehicular Networking Conference (VNC 2020)*, December 16-18, 2020, Online (New York, NY, USA), 1-4. [[DOI](#)]

- [P14] Molnár TG, Upadhyay D, Hopka M, Van Nieuwstadt M, Orosz G, Open and closed loop traffic control by connected automated vehicles, *59th IEEE Conference on Decision and Control (CDC 2020)*, December 14-18, 2020, Online (Jeju Island, Republic of Korea), 239-244. [\[DOI\]](#)
- [P13] Wang HM, Molnár TG, Avedisov SS, Sakr AH, Altintas O, Orosz G, Conflict Analysis for Cooperative Merging Using V2X Communication, *31st IEEE Intelligent Vehicles Symposium (IEEE IV 2020)*, October 20-23, 2020, Online (Las Vegas, NV, USA), 1538-1543. [\[DOI\]](#)
- [P12] He CR, Alan A, Molnár TG, Avedisov SS, Bell AH, Zukouski R, Hunkler M, Yan J, Orosz G, Improving fuel economy of heavy-duty vehicles in daily driving, *American Control Conference (ACC 2020)*, July 1-3, 2020, Online (Denver, CO, USA), 2306-2311. [\[DOI\]](#)
- [P11] Ji XA, Avedisov SS, Molnár TG, Orosz G, Feed-forward neural network with trainable delay, *2nd Conference on Learning for Dynamics and Control (L4DC 2020)*, June 11-12, 2020, Online (Berkeley, California, USA), Proceedings of Machine Learning Research **120**:127-136 (2020).
- [P10] Molnár TG, Upadhyay D, Hopka M, Van Nieuwstadt M, Orosz G, Lagrangian models for controlling large-scale heterogeneous traffic, *58th IEEE Conference on Decision and Control (CDC 2019)*, December 11-13, 2019, Nice, France, 3152-3157. [\[DOI\]](#)
- [P09] Berezvai Sz, Molnar TG, Kossa A, Bachrathy D, Stepan G, Numerical and experimental investigation of contact length during orthogonal cutting, *35th Danubia Adria Symposium on Advances in Experimental Mechanics (DAS 2018)*, September 25-28, 2018, Sinaia, Romania, Materials Today: Proceedings, **12**(2):329-334 (2019). [\[DOI\]](#)
- [P08] Molnar TG, Bachrathy D, Insuperger T, Stepan G, On process damping induced by vibration-dependency of cutting direction in milling, *8th CIRP Conference on High Performance Cutting (HPC 2018)*, June 25-27, 2018, Budapest, Hungary, Procedia CIRP **77**:171-174 (2018). [\[DOI\]](#)
- [P07] Berezvai Sz, Molnar TG, Bachrathy D, Stepan G, Experimental investigation of the shear angle variation during orthogonal cutting, *34th Danubia Adria Symposium on Advances in Experimental Mechanics (DAS 2017)*, September 19-22, 2017, Trieste, Italy, Materials Today: Proceedings **5**(13):26495–26500 (2018). [\[DOI\]](#)
- [P06] Miklos A, Takacs D, Wohlfart R, Poremповics G, Molnar TG, Bachrathy D, Toth A, Stepan G, The development of high speed virtual milling test, *ASME 2017 Dynamic Systems and Control Conference (DSCC 2017)*, October 11-13, 2017, Tysons, VA, USA, DSCC2017-5217, pp. V002T16A003. [\[DOI\]](#)
- [P05] Molnár TG, Dombóvári Z, Insuperger T, Stépán G, Dynamics of cutting near double Hopf bifurcation, *IUTAM Symposium on Nonlinear and Delayed Dynamics of Mechatronic Systems (IUTAM 2016)*, October 17-21, 2016, Nanjing, China, Procedia IUTAM **22**:123-130 (2017). [\[DOI\]](#)
- [P04] Molnár TG, Insuperger T, Stépán G, Estimation of safe chatter-free technological parameter regions for machining operations, *7th CIRP Conference on High Performance Cutting (HPC 2016)*, May 31-June 2, 2016, Chemnitz, Germany, Procedia CIRP **46**:464-467 (2016). [\[DOI\]](#)
- [P03] Molnár TG, Insuperger T, Hogan SJ, Stépán G, Investigating multiscale phenomena in machining: the effect of cutting-force distribution along the tool's rake face on process stability, *ASME 2015 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE 2015)*, August 2-5, 2015, Boston, MA, USA, DETC2015-47165, pp. V006T10A063. [\[DOI\]](#)
- [P02] Molnár TG, Qin WB, Insuperger T, Orosz G, Predictor design for connected cruise control subject to packet loss, *12th IFAC Workshop on Time Delay Systems (IFAC TDS 2015)*, June 28-30, 2015, Ann Arbor, MI, USA, IFAC-PapersOnLine **48**(12):428-433 (2015). [\[DOI\]](#)
- [P01] Molnár TG, Insuperger T, On the stabilizability of the delayed inverted pendulum controlled by finite spectrum assignment in case of parameter uncertainties, *ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE 2013)*, August 4-7, 2013, Portland, OR, USA, DETC2013-12316, pp. V07BT10A059. [\[DOI\]](#)

## Presentations

### *Invited seminars:*

- [09] *Safety-critical Control with Control Barrier Functions*,  
Air Force Research Laboratory and NodeIn, April 4, 2022, Online.
- [08] *Vehicle-to-Everything Connectivity in Traffic Modeling, Prediction and Control*,  
The Hong Kong University of Science and Technology, October 25, 2021, Online (Hong Kong).
- [07] *Traffic Prediction and Control Using V2X Connectivity*,  
University of Michigan, October 21, 2021, Online (Ann Arbor, MI, USA).
- [06] *On-Board Traffic Forecasting Using V2X Connectivity*,  
Ford Research and Innovation Center, December 8, 2020, Online (Dearborn, MI, USA).
- [05] *Continuum traffic flow models for applications of connected vehicles*,  
University of California San Diego, February 10, 2020, San Diego, CA, USA.
- [04] *Exploiting connectivity by infinite-dimensional traffic flow models*,  
California Institute of Technology, October 4, 2019, Pasadena, CA, USA.
- [03] *Utilization of V2V communication in modeling and prediction of traffic behavior*,  
Ford Research and Innovation Center, December 11, 2018, Dearborn, MI, USA.
- [02] *Application of predictor feedback to compensate time delays in connected cruise control*,  
University of Michigan, February 3, 2017, Online (Ann Arbor, MI, USA).
- [01] *On the stabilizability of the delayed inverted pendulum controlled by Finite Spectrum Assignment in case of parameter uncertainties*,  
University of Michigan, July 16, 2013, Ann Arbor, MI, USA.

### *Conference talks:*

- [22] *Safety-critical Control by Control Barrier Functions and Reduced Order Models*,  
40th Southern California Control Workshop, October 21, 2022, Pasadena, CA, USA.
- [21] *On-Board Traffic Prediction for Connected Vehicles: Implementation and Experiments on Highways*,  
American Control Conference, June 8-10, 2022, Atlanta, GA, USA.
- [20] *Model-Free Safety-Critical Control for Robotic Systems*,  
IEEE International Conference on Robotics and Automation, May 23-27, 2022, Philadelphia, PA, USA.
- [19] *Synthesizing Safety-Critical Controllers for Systems with Input Delay*,  
16th IFAC Workshop on Time Delay Systems, September 29-October 1, 2021, Online (Guangzhou, China).
- [18] *On-board Traffic Prediction Via V2X Connectivity*,  
International Symposium on Transportation Data and Modelling, June 21-24, 2021, Online (Ann Arbor, MI, USA).
- [17] *Safety-Critical Control of Compartmental Epidemiological Models with Measurement Delays*,  
American Control Conference, May 25-28, 2021, Online (New Orleans, LA, USA).
- [16] *Open and closed loop traffic control by connected automated vehicles*,  
59th IEEE Conference on Decision and Control, December 14-18, 2020, Online (Jeju Island, Republic of Korea).
- [15] *Lagrangian models for controlling large-scale heterogeneous traffic*,  
58th IEEE Conference on Decision and Control, December 11-13, 2019, Nice, France.
- [14] *Time delay models of vehicular traffic and their comparison to microscopic traffic data*,  
SIAM Conference on Applications of Dynamical Systems, May 19-23, 2019, Snowbird, UT, USA.
- [13] *Semidiscretization method for nonlinear time-periodic time-delay systems*,  
IUTAM Symposium on Exploiting Nonlinear Dynamics for Engineering Systems, July 15-19, 2018, Novi Sad, Serbia.
- [12] *On process damping induced by vibration-dependency of cutting direction in milling*,  
8th CIRP Conference on High Performance Cutting, June 25-27, 2018, Budapest, Hungary.
- [11] *Finding periodic solutions in the dynamics of metal cutting via averaging*,  
9th European Nonlinear Dynamics Conference, June 25-30, 2017, Budapest, Hungary.
- [10] *Analytical results in nonlinear dynamics of turning*,  
SIAM Conference on Applications of Dynamical Systems, May 21-25, 2017, Snowbird, UT, USA.
- [09] *Double Hopf bifurcation in orthogonal cutting processes*,  
IUTAM Symposium on Nonlinear and Delayed Dynamics of Mechatronic Systems, October 17-21, 2016, Nanjing, China.
- [08] *Higher-order estimation of limit cycle amplitude in metal cutting*,  
24th International Congress of Theoretical and Applied Mechanics August 21-26, 2016, Montréal, Canada.
- [07] *Estimation of safe chatter-free technological parameter regions for machining operations*,  
7th CIRP Conference on High Performance Cutting, May 31-June 2, 2016, Chemnitz, Germany.

- [06] *Higher-order estimation of the amplitude of regenerative vibrations in metal cutting*,  
Conference on Open Problems in Nonsmooth Dynamics, February 1-5, 2016, Bellaterra (Barcelona), Spain.
- [05] *Investigating multiscale phenomena in machining: the effect of cutting-force distribution along the tool's rake face on process stability*,  
ASME 2015 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, August 2-5, 2015, Boston, MA, USA.
- [04] *Predictor design for connected cruise control subject to packet loss*,  
12th IFAC Workshop on Time Delay Systems, June 28-30, 2015, Ann Arbor, MI, USA.
- [03] *Stability analysis of connected vehicle platoons in case of packet loss*,  
8th European Nonlinear Dynamics Conference, July 6-11, 2014, Vienna, Austria.
- [02] *On the stabilization by finite spectrum assignment in case of parameter uncertainties*,  
VI Finno-Ugric International Conference of Mechanics, August 11-15, 2013, Ráckeve, Hungary.
- [01] *On the stabilizability of the delayed inverted pendulum controlled by finite spectrum assignment in case of parameter uncertainties*,  
ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, August 4-7, 2013, Portland, OR, USA.

Pasadena, CA, USA

October 31, 2022