YAO MA

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EDUCATION

Ph.D.	The University of Texas at Austin, Mechanical Engineering	2019
M.S.	North Carolina State University, Electrical Engineering	2013
B.S.	Harbin Institute of Technology, Control Science and Engineering	2012

EXPERIENCE

Bose, Framingham, MA 2023 to present
Senior Controls System Engineer, Global Research & Development

- Applied research on *system dynamics, robust and optimal control, signal processing, system identification*
- Control design lead for noise cancelation wearable products

Texas Tech University, Lubbock, TX 2019 to 2022
Assistant Professor, Department of Mechanical Engineering

- Teaching undergraduate and graduate level courses on control and system dynamics: *linear/nonlinear control theory, optimization, model predictive control, etc.*
- Mentoring a team of undergraduate and graduate students to conduct research in *control, autonomous systems, and robotics*
- Establishing a research laboratory with a fully implemented *driving simulator*, *drive-by-wire automated vehicle*, *real-time hardware-in-the-loop simulation platform*
- Publishing scientific articles in leading transactions and presenting results at flagship conferences
- Writing grant proposals and leading projects from locally and nationally competitive funding agencies
- Serving as a subject expert for the academic community in control, including editorship/reviewing for leading transactions, organizing and chairing sessions for flagship conferences, etc.

The University of Texas at Austin, Austin, TX 2018 to 2019
Graduate Research Assistant, Mobility System Lab

- Designing control and evaluation metrics of Connected and Automated Vehicles for energy efficiency and mobility improvement
- Optimizing vehicle energy and emission performance with autonomy, connectivity, and driver characteristics

The Ohio State University, Columbus, OH 2014 to 2018
Graduate Research Associate, Vehicle System and Control Lab

- Modeling, control, and estimation of automotive engine, powertrain, and after-treatment system
- Optimization and control of hybrid vehicle power management systems

Mohu Consumer Electronics, Raleigh, NC 2013 to 2014
Electrical Engineer, Product Development

- Board-level analog circuit design, prototype, and manufacture

SKILLS

Research Expertise: System Dynamics and Control; Optimization; Signal Processing; Human-Autonomy Interaction; Reinforcement Learning; Connected and Automated Vehicle; Intelligent Transportation Systems
Hardware Implementation: dSPACE hardware-in-the-loop (HIL), National Instrument, Analog Device
Programming: MATLAB/SIMULINK, Python

SELECTED PROJECTS

Bose, Active Noise Cancelation 2023 to present
Role: Control Design Lead

- Design of robust optimal control algorithms for active noise cancelation

- Hands-on product development and cross-functional collaboration

Texas Tech University, Mobility Automation 2019 to 2022
Role: Principal Investigator
- Connected and Autonomous Vehicles in Mixed Traffic
- Driver Behavior Monitoring, Characterization, and Analysis
- Predictive Propulsion and Energy Systems Control for Connected Vehicles

National Science Foundation, Cyber-Physical System: Synergy 2016 to 2018
Role: Graduate Research Associate
- Next-generation, personalized, active vehicle safety control design with vehicle connectivity technologies
- Interactive driving simulation platform design and implementation with virtual reality and autonomous steering wheel control

Tenneco, Inc., Advanced Diesel Engine Aftertreatment System 2014 to 2015
Role: Graduate Research Assistant
- Design and implement control algorithms for emission control
- Test, calibrate, and maintain experimental systems (data acquisition, sensors, prototypes, code, etc.)

SPONSORED RESEARCH

As Principal Investigator:
National Science Foundation, Computer and Information Science and Engineering 2022
(Awarded $175,000)
- Human-Centric Connected and Automated Vehicles for Sustainable Mobility

National Science Foundation, Regional I-Corps Site Program 2021
(Awarded $3,000)
- Real-time data monitoring System with Nanorobotics

Texas Tech University, Edward E. Whitacre, Jr. College of Engineering 2020
(Awarded $11,333)
- Alternate Energy Research Initiative

SELECTED PUBLICATIONS

(names of supervised students are printed in *italic*)

Summary: first/corresponding author of 11 journals/transactions and 16 peer-reviewed conference publications; full list at https://drmayao.github.io/publication/

[1] *Mehmet Fatih Ozkan* and Yao Ma, "Distributed Stochastic Model Predictive Control for Human-Leading Heavy-Duty Truck Platoon," IEEE Transactions on Intelligent Transportation Systems, 2022. DOI: 10.1109/TITS.2022.3147719
[2] *Mehmet Fatih Ozkan* and Yao Ma, "Socially Compatible Control Design of Automated Vehicle in Mixed Traffic," IEEE Control Systems Letters, vol. 6, pp. 1730-1735, 2022, DOI: 10.1109/LCSYS.2021.3133175. (**ASME Automotive and Transportation System Best Paper Award**)
[3] *Mehmet Fatih Ozkan* and Yao Ma, "Eco-Driving of Connected and Automated Vehicle with Preceding Driver Behavior Prediction," ASME Journal of Dynamic Systems, Measurement and Control, January 2021; 143(1): 011002. https://doi.org/10.1115/1.4048108
[4] Yao Ma and Junmin Wang, "Integrated Power Management and Aftertreatment System Control for Hybrid Electric Vehicles with Road Grade Preview," IEEE Transactions on Vehicular Technology, Vol. 66, Issue 12, pp. 10935-10945, 2017 (DOI: 10.1109/TVT.2017.2763587).
[5] *Mehmet Fatih Ozkan* and Yao Ma, "Personalized Adaptive Cruise Control and Impacts on Mixed Traffic," Proceedings of the 2021 American Control Conference, 2021. (**ASME Automotive and Transportation System Best Paper Finalist**)