

# YAO MA

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## EDUCATION

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

## EXPERIENCE

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<b>Bose</b> , Framingham, MA	2023 to now
<b>Senior Controls System Engineer</b> , Global Research & Development	
<ul style="list-style-type: none"><li>Applied research on <i>system dynamics</i>, <i>optimal control</i>, and <i>signal processing</i></li><li>Advanced development of active noise-cancellation headphones and hearing aids</li></ul>	
<b>Texas Tech University</b> , Lubbock, TX	2019 to 2022
<b>Assistant Professor</b> , Department of Mechanical Engineering	
<ul style="list-style-type: none"><li>Teaching undergraduate and graduate level courses on control and system dynamics: <i>linear/nonlinear control theory</i>, <i>estimation</i>, <i>optimal control</i>, <i>model predictive control</i>, etc.</li><li>Mentoring a team of undergraduate and graduate students to conduct research in <i>control</i>, <i>autonomous systems</i>, and <i>robotics</i></li><li>Establishing a research laboratory with a fully implemented <i>driving simulator</i>, <i>drive-by-wire automated vehicle</i>, <i>real-time hardware-in-the-loop simulation platform</i></li><li>Publishing scientific articles in leading transactions and presenting results at flagship conferences</li><li>Writing grant proposals and leading projects from locally and nationally competitive funding agencies (National Science Foundation, etc.)</li><li>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.</li></ul>	
<b>The University of Texas at Austin</b> , Austin, TX	2018 to 2019
<b>Graduate Research Assistant</b> , Mobility System Lab	
<ul style="list-style-type: none"><li>Designing control and evaluation metrics of Connected and Automated Vehicles for energy efficiency and mobility improvement</li><li>Optimizing vehicle energy and emission performance with autonomy, connectivity, and driver characteristics</li></ul>	
<b>The Ohio State University</b> , Columbus, OH	2014 to 2018
<b>Graduate Research Associate</b> , Vehicle System and Control Lab	
<ul style="list-style-type: none"><li>Modeling, control, and estimation of automotive engine, powertrain, and after-treatment system</li><li>Optimization and control of hybrid vehicle power management systems</li></ul>	
<b>Mohu Consumer Electronics</b> , Raleigh, NC	2013 to 2014
<b>Electrical Engineer</b> , Product Development	
<ul style="list-style-type: none"><li>Board-level analog circuit design, prototype, and manufacture</li></ul>	

## SKILLS

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**Research Expertise:** System Dynamics and Control; Optimization; Human-Autonomy Interaction; Reinforcement Learning; Motion Planning; Connected and Automated Vehicle; Intelligent Transportation Systems  
**Hardware Implementation:** dSPACE hardware-in-the-loop (HIL), NI Labview  
**Programming:** MATLAB/SIMULINK, Python

## SELECTED PROJECTS

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<b>Texas Tech University</b> , 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

- 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
- Software user interface and environment design

**Tenneco, Inc.**, Advanced Diesel Engine Aftertreatment System

2014 to 2015

Role: Graduate Research Assistant

- Setup Engine test cell with the corresponding data acquisition system
- Implement CAN-based fast prototype Engine ECU
- Perform experiment calibration of Diesel after-treatment system
- Design and implement control algorithms for emission control purposes

## SPONSORED RESEARCH

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**As Principal Investigator:**

National Science Foundation, Computer and Information Science and Engineering  
(Awarded \$175,000)

2022

- Human-Centric Connected and Automated Vehicles for Sustainable Mobility

National Science Foundation, Regional I-Corps Site Program  
(Awarded \$3,000)

2021

- Real-time data monitoring System with Nanorobotics

Texas Tech University, Edward E. Whitacre, Jr. College of Engineering  
(Awarded \$11,333)

2020

- Alternate Energy Research Initiative

## SELECTED PUBLICATIONS

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(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**)