YAO MA

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2500 Broadway St
Lubbock, TX 79409

EDUCATION

PhD The University of Texas at Austin, Mechanical Engineering May 2019

MS North Carolina State University, Electrical Engineering Dec 2013

BS Harbin Institute of Technology, Control Science and Engineering Jul 2012

EXPERIENCE

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

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

- Evaluation and control design of Connected Autonomous Vehicle for energy efficiency and mobility improvement of transportation system
- Optimization of vehicle energy and emission performance with autonomy, connectivity and driver characteristics

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

- Modeling, control and estimation of automotive engine, powertrain and aftertreatment system
- Optimization and control of hybrid electric vehicle power management system

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

- Board-Level analog circuit design, prototype and manufacture

TEACHING

Texas Tech University, Lubbock Aug 2019 to Dec 2019
Instructor, Mechanical Engineering

- Teaching course ME 4334 Control of Dynamic Systems (48 students)

The University of Texas at Austin, Austin Jan 2019 to May 2019
Teaching Assistant, Mechanical Engineering

- Teaching assistant of course ME 340 Mechatronics (100 students)

The University of Texas at Austin, Austin Sep 2018 to Nov 2018
Recipient, Faculty Innovation Center

- Awarded Advance Teaching Preparation Certificate

The Ohio State University, Columbus Aug 2017 to Nov 2017
Guest Lecturer, Mechanical and Aerospace Engineering

- Course ME 3260 System Dynamics and Vibrations

The Ohio State University, Columbus Jun 2017 to Jun 2017
Instructor, College of Engineering, Diversity, Outreach & Inclusion Office

- Lead of summer camp WiE (Women in Engineering) RISEng STAR
- Lead of summer camp MEP (Minority Engineering Program) RISEng STAR

North Carolina State University, Raleigh Jun 2013 to Aug 2013
Teaching Assistant, Electrical Engineering

- Course Robotics featuring Scaled Autonomous Vehicle
- Supervise lab experiment

SELECTED PROJECTS

National Science Foundation, Cyber-Physical System Aug 2016 to Aug 2018

- Next-generation, personalized, active vehicle safety control systems 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 Aug 2014 to Aug 2015

- Setup Engine test cell with corresponding data acquisition system
- Establish CAN bus-based communication with fast prototype Engine ECU
- Perform experiment calibration of Diesel aftertreatment system including SCR, DOC, DPF
- Design and implement control algorithm for emission control purpose

GRANT PROPOSAL

Texas Department of Transportation Sep 2018

- Connected Vehicle Platooning Optimization for Emissions and Energy Consumption Reduction
- Drafted proposals and assisted the Principal Investigator in grant applications

PUBLICATIONS

Journal Publications

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).

Yao Ma and Junmin Wang, "Control of Aged Automotive Selective Catalytic Reduction Systems for Consistent Performances," Journal of the Franklin Institute, Vol. 354, Issue 18, pp. 8094-8116, 2017 (DOI: 10.1016/j.jfranklin.2017.10.003).

Yao Ma and Junmin Wang, "Observer-based Estimation of Aging Condition for Selective Catalytic Reduction Systems in Vehicle Applications," ASME Transactions Journal of Dynamic Systems, Measurement and Control, Vol. 139, No. 2, 021002 (9 pages), 2017 (DOI: 10.1115/1.4034508).

Yao Ma and Junmin Wang, "Sliding-mode Control of Automotive Selective Catalytic Reduction Systems with State Estimation," Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 2019

Yao Ma and Junmin Wang, "Predictive Control for NO_x Emission Reductions in Diesel Engine Vehicle Platoon Application," IEEE Transactions on Vehicular Technology, 2019

Journal Publications (Under Revision)

Yao Ma and Junmin Wang, "Analysis and Prediction of Driving Preference Impacts on Transportation Efficiency and Cost," submitted to IEEE Transactions on Vehicular Technology, 2019

Conference Papers

Yao Ma and Junmin Wang, "A Predictive Control Method for Automotive Selective Catalytic Reduction Systems," Proceedings of the 2019 American Control Conference, 2019.

Pingen Chen and Yao Ma, "Model Predictive NO_x Emission Control for a Biodiesel Engine Coupled with A Urea-based Selective Catalytic Reduction System." SAE Technical Paper, SAE World Congress, 2019.

Yao Ma and Junmin Wang, "A Study on Economical Vehicle Platooning Strategy in Urban Driving Scenarios," Proceedings of the 2018 IEEE Vehicle Power and Propulsion Conference, 2018.

Yao Ma and Junmin Wang, "Model Based Control of Automotive Selective Catalytic Reduction Systems with Road Grade Preview," Proceedings of the 2018 American Control Conference, 2018.

Yao Ma and Junmin Wang, "Sliding-mode Control of Ammonia Coverage Ratio for Automotive Selective Catalytic Reduction Systems," Proceedings of the 2018 American Control Conference, 2018.

Yao Ma and Junmin Wang, "A Control Method for Consistent Performance of Automotive Selective Catalytic Reduction Systems under Variant Aging Conditions," Proceedings of the 2016 American Control Conference, pp. 4187-4192, 2016.

Yao Ma and Junmin Wang, "Model-based Selective Catalytic Reduction Systems Aging Estimation," Proceedings of the 2016 IEEE International Conference on Advanced Intelligent Mechatronics, pp. 1521-1526, 2016.

PROFESSIONAL SERVICE

Peer-Reviewed Articles for:

- ASME Transactions Journal of Dynamic Systems, Measurement and Control
- Advances in Mechanical Engineering
- Automotive Innovation
- IEEE/ASME Transactions on Mechatronics
- IEEE Access
- IEEE Control Systems Letters
- IEEE Transactions on Intelligent Transportation
- IEEE Transaction on Industrial Electronics
- IEEE Transactions on Vehicular Technology
- Nonlinear Dynamics
- Transportation Research Part C: Emerging Technologies
- Proceedings of the American Control Conference (2016-2018)

Professional Membership:

- ASME Automotive and Transportation Systems Technical Committee, Member