Ziran Wang

Ph.D. in Mechanical Engineering
Phone: (626) 271-3096
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EDUCATION

Ph.D. in Mechanical Engineering *Sep. 2015 - Jun. 2019*
University of California, Riverside (UCR)
Advisor: Dr. Matthew J. Barth, Professor, Electrical and Computer Engineering
Dissertation: Developing Agent-Based Distributed Cooperative Vehicle-Infrastructure Systems in the Connected and Automated Vehicle Environment

B.E. in Mechanical Engineering and Automation *Sep. 2011 - Jun. 2015*
College of Automation
Beijing University of Posts and Telecommunications (BUPT)

EMPLOYMENT

Research Scientist *Jul. 2019 - Present*
Toyota Motor North America (TMNA) R&D, InfoTech Labs, Mountain View, CA (Supervisor: Dr. Prashant Tiwari)

Graduate Student Researcher *Jun. 2016 - Jun. 2019*
Transportation Systems Research Lab, UCR, Riverside, CA (Advisor: Dr. Matthew Barth)

Research Intern *Jun. 2018 - Sep. 2018*
Toyota InfoTechnology Center, Mountain View, CA (Supervisor: Dr. BaekGyu Kim)

Graduate Student Researcher *Nov. 2015 - Jun. 2016*
Cooperative Vehicle Networks Lab, UCR, Riverside, CA (Advisor: Dr. Wei Ren)

Summer Intern *Jul. 2014 - Aug. 2014*
Changan Suzuki (i.e., Suzuki China), Chongqing, China

FUNDED PROJECTS

Evaluating Connected Vehicle Applications in a Mixed Traffic Environment using a "Digital Twin" Approach
- Sponsor: Toyota Motor North America
- Partner: University of California, Riverside
- Total fund: $210,000
- Period: *Oct. 2018 - Present*

Design for Trustworthy Autonomy into Future Vehicles
- Sponsor: Toyota Motor North America
- Partner: University of Virginia
- Total fund: $160,000
- Period: *Oct. 2018 - Present*

Traffic Optimization for Signalized Corridors (TOSCo) Small Scale Test & Evaluation Project
- Sponsor: Federal Highway Administration (FHWA), United States Department of Transportation
- Partners: Crash Avoidance Metrics Partners (CAMP) LLC Vehicle to Infrastructure Consortium (Ford, General Motors, Hyundai-Kia, Honda, Mazda, Nissan, Subaru, Volvo Truck, and VW/Audi), IAV GmbH, Texas A&M Transportation Institute (TTI), and The University of Michigan Transportation Institute (UMTRI)
- Total fund: $757,809
- Period: *Apr. 2015 - Jun. 2019*

An Innovative Vehicle-Powertrain Eco-Operation System for Efficient Plug-In Hybrid Electric Buses
- Sponsor: Advanced Research Projects Agency-Energy (ARPA-E), United States Department of Energy
- Partners: Oak Ridge National Laboratory, US Hybrid
- Total fund: $2,799,999
- Period: *Mar. 2017 - Oct. 2020*

Connected Eco-Driving for Heavy-Duty Conventional and Plug-In Hybrid Electric Trucks

- Sponsor: California Air Resources Board, SCAQMD
- Partners: Volvo Group North America
- Total fund: $400,000
- Period: *Sep. 2017 - Mar. 2019*

Development of Eco-Friendly Ramp Control based on Connected and Automated Vehicle Technology

- Sponsor: National Center for Sustainable Transportation (NCST), United States Department of Transportation
- Total fund: $ 78,355
- Period: *Oct. 2018 - Sep. 2019*

REFEREED PUBLICATIONS

Under Review

[**J32**]Digital Twin-Assisted Cooperative Driving at Non-Signalized Intersections

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- *IEEE Transactions on Intelligent Vehicles*, under review

[**J31**]Vision-Cloud Data Fusion for ADAS: A Lane Change Prediction Case Study

- Yongkang Liu, Ziran Wang, Kyungtae Han, Zhenyu Shou, Prashant Tiwari, and John H. L. Hansen
- *IEEE Transactions on Intelligent Transportation Systems*, under review

[**J30**]Game Theory-Based Ramp Merging for Mixed Traffic with Unity-SUMO Integrated Simulation

- Xishun Liao, Xuanpeng Zhao, Ziran Wang, Kyungtae Han, Prashant Tiwari, Matthew J. Barth, and Guoyuan Wu
- *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, under review

[**C29**]Trust-Based Route Planning for Autonomous Vehicles

- Shili Sheng, Erfan Pakdamanian, Kyungtae Han, Ziran Wang, John Lenneman and Lu Feng
- *12th ACM/IEEE International Conference on Cyber-Physical Systems,* under review

Journal Publications

[**J28**]Cooperative Ramp Merging Design and Field Implementation: A Digital Twin Approach based on Vehicle-to-Cloud Communication

- Xishun Liao, Ziran Wang, Xuanpeng Zhao, Kyungtae Han, Prashant Tiwari, Matthew J. Barth, and Guoyuan Wu
- *IEEE Transactions on Intelligent Transportation Systems*, accepted

[**J27**]Eco-Approach and Departure along Signalized Corridors

- Guoyuan Wu, Peng Hao, Ziran Wang, Yu Jiang, Kanok Boriboonsomsin, Matthew J. Barth, Michael McConnell, Shuwei Qiang, and John Stark
- *SAE International Journal of Sustainable Transportation, Energy, Environment, & Policy*, accepted

[**J26**]Driver Behavior Modeling using Game Engine: A Learning-Based Approach

- Ziran Wang, Xishun Liao, Chao Wang, David Oswald, Guoyuan Wu, Kanok Boriboonsomsin, Matthew J. Barth, Kyungtae Han, BaekGyu Kim, and Prashant Tiwari
- *IEEE Transactions on Intelligent Vehicles*, vol. 5, no. 4, Dec. 2020, pp. 738–749

[**J25**]Cooperative Eco-Driving along Multiple Signalized Intersections in a Partially Connected and Automated Vehicle Environment

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *IEEE Transactions on Intelligent Transportation Systems*, vol.21, no.5, May 2020, pp. 2029–2038

[**J24**]A Survey on Cooperative Longitudinal Motion Control of Multiple Connected Automated Vehicles

- Ziran Wang, Yougang Bian, Steven E. Shladover, Guoyuan Wu, Shengbo E. Li, and Matthew J. Barth
- *IEEE Intelligent Transportation Systems Magazine*, vol. 12, no. 1, Spring 2020, pp. 4–25

[J23]Cooperative Ramp Merging System: Agent-Based Modeling and Simulation Using Game Engine (**Best Paper Award**)

- Ziran Wang, Guoyuan Wu, Kanok Boriboonsomsin, Matthew J. Barth, Kyungtae Han, BaekGyu Kim, and Prashant Tiwari
- *SAE International Journal of Connected and Automated Vehicles*, vol.2, no.2, May 2019, pp. 115–128

[J22]Cluster-Wise Cooperative Eco-Approach and Departure Application for Connected and Automated Vehicles along Signalized Arterials

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *IEEE Transactions on Intelligent Vehicles*, vol. 3, no. 4, Dec. 2018, pp. 404–413

[J21]Developing a Distributed Consensus-Based Cooperative Adaptive Cruise Control (CACC) System for Heterogeneous Vehicles with Predecessor Following Topology

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *Journal of Advanced Transportation*, vol. 2017, Article ID 1023654, Aug. 2017

Conference Proceedings

[C20]Motion Estimation of Connected and Automated Vehicles under Communication Delay and Packet Loss of V2X Communications

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- *SAE World Congress Experience 2021,* Virtual Conference, Apr. 2021

[C19]A Game Theory Based Ramp Merging Strategy for Connected and Automated Vehicles in the Mixed Traffic: A Unity-SUMO Integrated Platform

- Xishun Liao, Xuanpeng Zhao, Guoyuan Wu, Matthew J. Barth, Ziran Wang, Kyungtae Han, and Prashant Tiwari
- *Transportation Research Board 100th Annual Meeting*, Virtual Conference, Jan. 2021

[C18]Augmented Reality-Based Advanced Driver-Assistance System for Connected Vehicles

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- *2020 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2020)*, Virtual Conference, Oct. 2020

[C17]Long-Term Prediction of Lane Change Maneuver through a Multilayer Perceptron

- Zhenyu Shou, Ziran Wang, Kyungtae Han, Yongkang Liu, Prashant Tiwari, and Xuan Di
- *2020 IEEE Intelligent Vehicles Symposium*, Virtual Conference, Oct. 2020

[C16]Sensor Fusion of Camera and Cloud Digital Twin Information for Intelligent Vehicles

- Yongkang Liu, Ziran Wang, Kyungtae Han, Zhenyu Shou, Prashant Tiwari, and John H. L. Hansen
- *2020 IEEE Intelligent Vehicles Symposium*, Virtual Conference, Oct. 2020

[C15]Optimal Control-Based Eco-Ramp Merging System

- Zhouqiao Zhao, Guoyuan Wu, Ziran Wang, and Matthew J. Barth
- *2020 IEEE Intelligent Vehicles Symposium*, Virtual Conference, Oct. 2020

[C14]A Digital Twin Paradigm: Vehicle-to-Cloud Based Advanced Driver Assistance Systems

- Ziran Wang, Xishun Liao, Xuanpeng Zhao, Kyungtae Han, Prashant Tiwari, Matthew J. Barth, and Guoyuan Wu
- *IEEE 91st Vehicular Technology Conference (VTC2020-Spring)*, Virtual Conference, May 2020

[C13]Cooperative Ramp Merging with Vehicle-to-Cloud Communications: A Field Experiment

- Xishun Liao, David Oswald, Ziran Wang, Guoyuan Wu, Kanok Boriboonsomsin, Matthew J. Barth, Kyungtae Han, BaekGyu Kim, and Prashant Tiwari
- *Transportation Research Board 99th Annual Meeting*, Washington D.C., Jan. 2020

[C12]End-to-End Vision-Based Adaptive Cruise Control (ACC) Using Deep Reinforcement Learning

- Zhensong Wei, Yu Jiang, Xishun Liao, Xuewei Qi, Ziran Wang, Guoyuan Wu, Peng Hao, and Matthew J. Barth,
- *Transportation Research Board 99th Annual Meeting*, Washington D.C., Jan. 2020

[C11]Early Findings from Field Trials of Heavy-Duty Truck Connected Eco-Driving System

- Ziran Wang, Yuan-Pu Hsu, Alexander Vu, Francisco Caballero, Peng Hao, Guoyuan Wu, Kanok Boriboonsomsin, Matthew J. Barth, Aravind Kailas, Pascal Amar, Eddie Garmon, and Sandeep Tanugula
- *IEEE 22nd International Conference on Intelligent Transportation Systems*, Auckland, New Zealand, Oct. 2019

[C10]The State-of-the-Art of Coordinated Ramp Control with Mixed Traffic Conditions

- Zhouqiao Zhao, Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *IEEE 22nd International Conference on Intelligent Transportation Systems*, Auckland, New Zealand, Oct. 2019

[C9]Lookup Table-Based Consensus Algorithm for Real-Time Longitudinal Motion Control of Connected and Automated Vehicles

- Ziran Wang, Kyungtae Han, BaekGyu Kim, Guoyuan Wu, and Matthew J. Barth
- *2019 American Control Conference,* Philadelphia, PA, Jul. 2019

[C8]Agent-Based Modeling and Simulation of Connected and Automated Vehicles Using Game Engine: A Cooperative On-Ramp Merging Study

- Ziran Wang, BaekGyu Kim, Hiromitsu Kobayashi, Guoyuan Wu, and Matthew J. Barth
- *Transportation Research Board 98th Annual Meeting*, Washington D.C., Jan. 2019

[C7]Eco-Approach and Departure along Signalized Corridors

- Guoyuan Wu, Peng Hao, Ziran Wang, Kanok Boriboonsomsin, and Matthew J. Barth
- *Transportation Research Board 98th Annual Meeting*, Washington D.C., Jan. 2019

[C6]A Review on Cooperative Adaptive Cruise Control (CACC) Systems: Architectures, Controls, and Applications

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *IEEE 21st International Conference on Intelligent Transportation Systems*, Maui, Hawaii, Nov. 2018

[C5]Distributed Consensus-Based Cooperative Highway On-Ramp Merging Using V2X Communications

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *SAE Technical Paper,* 2018-01-1177, Apr. 2018

[C4]Cluster-Wise Cooperative Eco-Approach and Departure Application along Signalized Arterials

- Ziran Wang, Guoyuan Wu, Peng Hao, and Matthew J. Barth
- *IEEE 20th International Conference on Intelligent Transportation Systems*, Yokohama, Japan, Oct. 2017

[C3]Intra-Platoon Vehicle Sequence Optimization for Eco-Cooperative Adaptive Cruise Control

- Peng Hao, Ziran Wang, Guoyuan Wu, Kanok Boriboonsomsin, and Matthew J. Barth
- *IEEE 20th International Conference on Intelligent Transportation Systems*, Yokohama, Japan, Oct. 2017

[C2]Developing a Platoon-Wide Eco-Cooperative Adaptive Cruise Control (CACC) System

- Ziran Wang, Guoyuan Wu, Peng Hao, Kanok Boriboonsomsin, and Matthew J. Barth
- *2017 IEEE Intelligent Vehicles Symposium*, Redondo Beach, CA, Jun. 2017

[C1]Developing a Distributed Consensus-Based Cooperative Adaptive Cruise Control (CACC) System

- Ziran Wang, Guoyuan Wu, and Matthew J. Barth
- *Transportation Research Board 96th Annual Meeting*, Washington D.C., Jan. 2017

OTHER PUBLICATIONS

Book Chapters

[B3]New Simulation Tools for Training and Testing Automated Vehicles

- Jiaqi Ma, Chris Schwarz, Ziran Wang, Maria Elli, German Ros, and Yiheng Feng
- *Road Vehicles Automation,* vol. 7, pp. 111 – 119, Springer

Technical Reports

[R2]Development of Eco-Friendly Ramp Control for Connected and Automated Electric Vehicles

- Guoyuan Wu, Zhouqiao Zhao, Ziran Wang, and Matthew J. Barth
- *National Center for Sustainable Transportation, U.S. Department of Transportation,* NCST-UCR-RR-20-04, Jan. 2020

[R1]MOVESTAR: An Open-Source Vehicle Fuel and Emission Model based on USEPA MOVES

- Ziran Wang, Guoyuan Wu, and George Scora
- *arXiv Preprint arXiv: 2008.04986,* URL: https://github.com/ziranw/MOVESTAR-Fuel-and-Emission-Model, Aug. 2020

PATENTS

[P13]Multiple Time Scale Architecture for User-Customized Cooperative Driving

- Sergei Avedisov, Ziran Wang, Ahmed Sakr, Kyungtae Han, Rui Guo, and Onur Altintas
- U.S. patent application, Filed Dec. 2020

[P12]Producing, for an Autonomous Vehicle, a Route from an Origination to a Destination

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- U.S. patent application 63/111142, Filed Nov. 2020

[P11]System and Method for Connected Vehicle Lane Merge

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- U.S. patent application 17/031095, Filed Sep. 2020

[P10]System and Methods for Providing Guidance to Vehicle Drivers Regarding Predicted Lane-Change Behavior of Vehicle Drivers

- Zhenyu Shou, Kyungtae Han, Ziran Wang, Yongkang Liu, and Prashant Tiwari
- U.S. patent application 16/999332, Filed Aug. 2020

[P9]Rest Stop Recommendation System

- Zhenyu Shou, Ziran Wang, Kyungtae Han, Yongkang Liu, and Prashant Tiwari
- U.S. patent application 16/998529, Filed Aug. 2020

[P8]Identifying a Specific Object in a Two-Dimensional Image of Objects

- Yongkang Liu, Ziran Wang, Kyungtae Han, Zhenyu Shou, and Prashant Tiwari
- U.S. patent application 16/927467, Filed Jul. 2020

[P7]Systems and Methods for Long-Term Prediction of Lane Change Maneuver

- Zhenyu Shou, Ziran Wang, Kyungtae Han, Yongkang Liu, and Prashant Tiwari
- U.S. patent application 16/897386, Filed Jun. 2020

[P6]Ramp Merging Assistance

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- U.S. patent application 16/781211, Filed Feb. 2020

[P6]Systems and Methods for Compensating for Driver Speed-Tracking Error

- Ziran Wang, Kyungtae Han, and Prashant Tiwari
- U.S. patent application 16/775772, Filed Jan. 2020

[P5]Longitudinal Motion Control of Connected and Automated Vehicles

- Ziran Wang, Hiromitsu Kobayashi, Kyungtae Han, and BaekGyu Kim
- U.S. patent application 16/364851, Filed May 2019, Published Nov. 2020

[P4]Adjustable Blind Spot Monitor

- Ziran Wang, Kyungtae Han, and BaekGyu Kim
- U.S. patent application 16/364851, Filed Mar. 2019, Published Oct. 2020

[P3]Vehicle-to-Everything Communication-Based Lane Change Collision Avoidance Warning

- Ziran Wang, Kyungtae Han, and BaekGyu Kim
- U.S. patent application 16/295700, Filed Mar. 2019, Published Sep. 2020

[P2]Virtualized Driver Assistance

- Ziran Wang, BaekGyu Kim, and Hiromitsu Kobayashi
- U.S. patent application 16/268729, Filed Feb. 2019, Published Aug. 2020

[P1]XR-based Slot Reservation System For Connected Vehicles Traveling Through Intersections

- Ziran Wang, Kyungtae Han, and BaekGyu Kim
- U.S. patent application 16/264475, Filed Jan. 2019, Published Aug. 2020

PROFESSIONAL ACTIVITIES

As an Editor

Associate editor of *SAE International Journal of Connected and Automated Vehicles* — *Jun. 2020 - Present*

Associate editor of *IEEE International Conference on Intelligent Transportation Systems (ITSC)* — *Feb. 2020 - Present*

As a Member

Member of SAE On Road Automated Driving (ORAD) Simulation Task Force — *Nov. 2020 - Present*

Member of Technical Committee on Industrial CPS, IEEE Industrial Electronics Society — *Jul. 2020 - Present*

Member of Technical Committee on Smart Cities, IEEE Control Systems Society — *Jun. 2020 - Present*

Member of Society of Automotive Engineers (SAE) — *Jan. 2018 - Present*

Member of Southern California Chinese-American Environmental Protection Association (SCCAEPA) — *Feb. 2017 - Present*

Member of International Chinese Transportation Professionals Association (ICTPA) — *Feb. 2017 - Present*

Member of Chinese Overseas Transportation Association (COTA) — *Jan. 2017 - Present*

Friend of Transportation Research Board (TRB) Standing Committee: Vehicle-Highway Automation — *Jan. 2017 - Present*

Member of Institute of Electrical and Electronics Engineers (IEEE) — *Sep. 2016 - Present*

As an Organizer

Chair of 2020 *IEEE Intelligent Vehicles Symposium* (IV), Internet of Things in Intelligent Transportation Systems: Opportunities and Challenges Workshop, Virtual — *Oct. 2020*

Chair of 23rd IEEE International Conference on Intelligent Transportation Systems (ITSC), Testing and Evaluation Connected and Automated Vehicles Using Emerging Simulation Technologies Workshop, Virtual — *Sep. 2020*

Co-Chair of 4th IEEE Conference on Control Technology and Applications (CCTA), Automotive Control Invited Sessions, Virtual — *Aug. 2020*

As a Reviewer

Reviewer of *IEEE Transactions on Control Systems Technology* — *Dec. 2020 - Present*

Reviewer of *Journal of Traffic and Transportation Engineering* — *Nov. 2020 - Present*

Reviewer of *IEEE Vehicular Technology Magazine* — *Nov. 2020 - Present*

Reviewer of *Transportation Research Part D: Transport and Environment* — *Nov. 2020 - Present*

Reviewer of *Information Sciences* — *Oct. 2020 - Present*

Reviewer of *Journal of Selected Topics in Signal Processing* — *Sep. 2020 - Present*

Reviewer of *Serbian Journal of Electrical Engineering* — *Aug. 2020 - Present*

Reviewer of *MDPI Multimodal Technologies and Interaction* — *May 2020 - Present*

Reviewer of *MDPI Applied Science* — *May 2020 - Present*

Reviewer of *IEEE Forum on Integrated and Sustainable Transportation Systems* — *Mar. 2020 - Present*

Reviewer of *International Journal of Automotive Technology* — *Feb. 2020 - Present*

Reviewer of *International Journal of Automotive Technology* — *Feb. 2020 - Present*

Reviewer of *MDPI Sensors* — *Feb. 2020 - Present*

Reviewer of *Journal of Intelligent Transportation Systems* — *Jan. 2020 - Present*

Reviewer of *International Journal of Transportation Science and Technology* — *Jan. 2020 - Present*

Reviewer of *MDPI Information* — *Jan. 2020 - Present*
Reviewer of *IEEE Open Journal of Intelligent Transportation Systems* — *Dec. 2019 - Present*
Reviewer of *IEEE Vehicular Technology Conference* — *Nov. 2019 - Present*
Reviewer of *MDPI Vehicles* — *Nov. 2019 - Present*
Reviewer of *IEEE Transactions on Intelligent Vehicles* — *Oct. 2019 - Present*
Reviewer of *IEEE Access* — *Aug. 2019 - Present*
Reviewer of *Journal of Control, Automation and Electric Systems* — *Apr. 2019 - Present*
Reviewer of *IEEE Conference on Control Technology and Applications* — *Mar. 2019 - Present*
Reviewer of *SAE International Journal of Connected and Automated Vehicles* — *Oct. 2018 - Present*
Reviewer of *American Control Conference (ACC)* — *Oct. 2018 – Present*
Reviewer of *Transportation Research Record (TRR)* — *Aug. 2018 - Present*
Reviewer of *International Conference on Computer Science and Application Engineering (CSAE)* — *Aug. 2018 - Present*
Reviewer of *Journal of Advanced Transportation* — *Jul. 2018 - Present*
Reviewer of *IEEE International Conference on Intelligent Transportation Systems (ITSC)* — *May 2018 - Present*
Reviewer of *Case Studies on Transport Policies (CSTP)* — *May 2018 - Present*
Reviewer of *IEEE Intelligent Vehicles Symposium* — *Mar. 2018 - Present*
Reviewer of *IET Intelligent Transport Systems* — *Jan. 2018 - Present*
Reviewer of *ASCE International Conference on Transportation & Development (ICTD)* — *Dec. 2017 - Present*
Reviewer of *SAE Technical Papers* — *Oct. 2017 - Present*
Reviewer of *TRB Annual Meeting* — *Sep. 2017 - Present*
Reviewer of *IEEE Transactions on Intelligent Transportation Systems* — *Jun. 2017 - Present*
Reviewer of *COTA International Conference of Transportation Professionals (CICTP)* — *Feb. 2017 - Present*

As a Volunteer

Organizer of *2018 IEEE 21st ITSC*, Maui, HI — *Nov. 2018*
Onsite support of Humanplus Intelligent Robotics Technology Co., Ltd. on CES 2018, Las Vegas, NV — *Jan. 2018*
Organizer of Chinese Institute of Engineers (CIE) So-Cal Chapter Annual Convention, Rowland Heights, CA — *Sep. 2017*
Organizer of *2017 IEEE IV Symposium*, Redondo Beach, CA — *Jun. 2017*

TEACHING EXPERIENCE

Intelligent Transportation Systems (UCR EE 246) — *Oct. 2018*

- Conducted 2 hours of lecture independently as a rotating lecturer of the course
- Introduced car-following models, cooperative adaptive cruise control, and simulation tools

Feedback Control (UCR ME 121) — *Mar. 2017 - Jun. 2017*

- Conducted 20 hours of discussion sessions independently as a teaching assistant of the course
- Introduced the analysis and design of feedback control systems using classical control methods, including block diagrams, closed-loop stability, root locus, Bode plots, and etc.

Mechanical Engineering Modeling and Analysis (UCR ME 118) — *Jan. 2017 - Mar. 2017*

- Conducted 20 hours of discussion sessions independently as a teaching assistant of the course
- Introduced data analysis and modeling used in engineering through MATLAB, including descriptive and inferential statistics, fitting linear and nonlinear models to observed data, numerical differentiation and integration, etc.

Introduction to Engineering Computation (UCR ME 018) — *Sep. 2016 - Dec. 2016*

- Conducted 60 hours of lab sessions independently as a teaching assistant of the course
- Introduced the use of MATLAB in engineering computation, including scripts and functions, programming, input/output, two and three-dimensional graphics, elementary numerical analysis, etc.

ADVISED STUDENTS

Advised at Toyota

- Yanbin Wang, *now*: 2021 winter co-op @Toyota, Ph.D. student in Civil Engineering @Vanderbilt
- Zhenyu Shou, *then*: 2020 winter co-op @Toyota, *now*: Ph.D. student in Civil Engineering @Columbia
- Yongkang Liu, *then:* 2020 winter co-op @Toyota, *now:* Ph.D. student in EE @UT Dallas
- Xianguo Liu, *then:* 2019 summer co-op @Toyota, *now*: Ph.D. student in ECE @Northwestern

Advised at UCR

- Xishun Liao, *then*: M.S. student in ME @Maryland & summer research intern @UCR, *now*: Ph.D. student in ECE @UCR
- Yuan-Pu Hsu, *then:* M.S. student in ECE @UCR, *now:* Software Engineer @Microsoft
- Xuanpeng Zhao, *then:* B.S. & M.S. student in ECE @UCR, *now:* Ph.D. student in ECE @UCR
- Yu Jiang, *then:* B.S. & M.S. student in ECE @UCR, *now:* M.S. student in ECE @UCR
- Pingbo Ruan, *then:* B.S. & M.S. student in ECE @UCR, *now:* M.S. student in ECE @UCR
- Shangrui Liu, *then:* B.S. & M.S. student in ECE @UCR, *now:* M.S. student in ECE @UCR
- Hangquan Zhao, *then:* B.S. student in ECE @UCR, *now:* M.S. student in ECE @UCSD
- Yue You, *then:* B.S. student in ECE @UCR, *now:* M.S. student in ECE @UCR
- Yu Wang, *then:* M.S. student in ME @UCR

INVITED TALKS

A Digital Twin Paradigm: Vehicle-to-Cloud Based Advanced Driver Assistance Systems

- 23rd COTA Annual Winter Symposium, Washington D.C., Jan. 2020

Unity3D-Based AV Simulation with V2X Communication and Human-in-the-Loop Integration

- Automated Vehicles Symposium, Orlando, FL, Jul. 2019

Agent-Based Modeling and Simulation of Connected and Automated Vehicles Using Game Engine

- Transportation Research Board (TRB) 98th Annual Meeting, Washington, D.C., Jan. 2019

Eco-Friendly Applications in Connected and Automated Vehicle Technology

- University of California, Riverside CE-CERT Open House, Riverside, CA, Oct. 2018

Connected Eco-Bus: An Innovative Vehicle Powertrain Eco-Operation System for Efficient Plug-In Hybrid Electric Buses

- ARPA-E NEXTCAR 2018 Annual Meeting, Southfield, MI, Apr. 2018

Distributed Consensus-Based Cooperative Highway On-Ramp Merging Using V2X Communications

- WCX: SAE World Congress Experience, Detroit, MI, Apr. 2018

Connected and Automated Vehicle Research at UCR

- University of California, Riverside Extension, Riverside, CA, Jan. 2018

Developing a Platoon-Wide Eco-Cooperative Adaptive Cruise Control (CACC) System

- Los Angeles Environmental Forum, San Gabriel, CA, Aug. 2017

Distributed Consensus-Based Cooperative Adaptive Cruise Control (CACC) Systems

- TuSimple Technology Co., Ltd., San Diego, CA, Jul. 2017

HONORS & AWARDS

Vincent Bendix Automotive Electronics Engineering Award (i.e., best paper in 2019), SAE International *Feb. 2020*
U.S. Department of Transportation National Center for Sustainable Transportation (NCST) Dissertation Award *Jun. 2018*
Best Student Research Paper Award, Los Angeles Environmental Forum *Aug. 2017*
UCR Dean's Distinguished Fellowship Award *Fall 2015 - Spring 2017*
BUPT Scholarship Award *Jun. 2014 & Jun. 2013*

The Honorable Mention, The Mathematical Contest in Modeling (MCM) *Feb. 2014*

MEDIA EXPOSURES

NCST Partner CE-CERT Takes Eco-Driving Simulator to CES, National Center for Sustainable Transportation, *Jan. 2020*

Testing a Connected Eco-Driving System in Field Trials with Heavy-Duty Trucks, Featured News, Tech Xplore, *Aug. 2019*

Steering into the Future of Connected and Automated Vehicles, UCR News, *Jul. 2019*