

# Ziran Wang

Ph.D. in Mechanical Engineering

Phone: (626) 271-3096

Email: [ryanwang1@hotmail.com](mailto:ryanwang1@hotmail.com)

Website: <http://ziranw.github.io>

## 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

#### [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

#### [J29]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*, Under Review

#### [C28]Trust-Based Route Planning for Autonomous Vehicles

- Shili Sheng, Erfan Pakdamanian, Kyungtae Han, [Ziran Wang](#), John Lenneman and Lu Feng
- *12<sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems*, Under Review

#### [C27]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*, Under Review

### Published Journal Papers

#### [J26]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*, to appear

#### [J25]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*, DOI: 10.1109/TIV.2020.2991948, May 2020

#### [J24]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

#### [J23]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

[J22]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

[J21]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

[J20]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

### **Published Conference Papers**

[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 100<sup>th</sup> Annual Meeting*, Washington D.C., 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 91<sup>st</sup> 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 99<sup>th</sup> 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, Xuwei Qi, Ziran Wang, Guoyuan Wu, Peng Hao, and Matthew J. Barth,
- *Transportation Research Board 99<sup>th</sup> 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 22<sup>nd</sup> 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 22<sup>nd</sup> 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 98<sup>th</sup> 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 98<sup>th</sup> 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 21<sup>st</sup> 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 20<sup>th</sup> 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 20<sup>th</sup> 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 96<sup>th</sup> 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 Nov. 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

### [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

## [P<sub>2</sub>]Virtualized Driver Assistance

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

## [P<sub>1</sub>]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 <i>SAE International Journal of Connected and Automated Vehicles</i>	Jun. 2020 - Present
Associate editor of <i>IEEE International Conference on Intelligent Transportation Systems (ITSC)</i>	Feb. 2020 - Present

### As a Member

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 <i>IEEE Intelligent Vehicles Symposium (IV)</i> , Internet of Things in Intelligent Transportation Systems: Opportunities and Challenges Workshop, Virtual	Oct. 2020
Chair of 23 <sup>rd</sup> <i>IEEE International Conference on Intelligent Transportation Systems (ITSC)</i> , Testing and Evaluation Connected and Automated Vehicles Using Emerging Simulation Technologies Workshop, Virtual	Sep. 2020
Co-Chair of 4 <sup>th</sup> <i>IEEE Conference on Control Technology and Applications (CCTA)</i> , Automotive Control Invited Sessions, Virtual	Aug. 2020

### As a Reviewer

Reviewer of <i>Journal of Traffic and Transportation Engineering</i>	Nov. 2020 - Present
Reviewer of <i>IEEE Vehicular Technology Magazine</i>	Nov. 2020 - Present
Reviewer of <i>Transportation Research Part D: Transport and Environment</i>	Nov. 2020 - Present
Reviewer of <i>Information Sciences</i>	Oct. 2020 - Present
Reviewer of <i>Journal of Selected Topics in Signal Processing</i>	Sep. 2020 - Present
Reviewer of <i>Serbian Journal of Electrical Engineering</i>	Aug. 2020 - Present
Reviewer of <i>MDPI Multimodal Technologies and Interaction</i>	May 2020 - Present
Reviewer of <i>MDPI Applied Science</i>	May 2020 - Present
Reviewer of <i>IEEE Forum on Integrated and Sustainable Transportation Systems</i>	Mar. 2020 - Present
Reviewer of <i>International Journal of Automotive Technology</i>	Feb. 2020 - Present
Reviewer of <i>International Journal of Automotive Technology</i>	Feb. 2020 - Present
Reviewer of <i>MDPI Sensors</i>	Feb. 2020 - Present
Reviewer of <i>Journal of Intelligent Transportation Systems</i>	Jan. 2020 - Present
Reviewer of <i>International Journal of Transportation Science and Technology</i>	Jan. 2020 - Present
Reviewer of <i>MDPI Information</i>	Jan. 2020 - Present
Reviewer of <i>IEEE Open Journal of Intelligent Transportation Systems</i>	Dec. 2019 - Present
Reviewer of <i>IEEE Vehicular Technology Conference</i>	Nov. 2019 - Present
Reviewer of <i>MDPI Vehicles</i>	Nov. 2019 - Present
Reviewer of <i>IEEE Transactions on Intelligent Vehicles</i>	Oct. 2019 - Present



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

### **As a Volunteer**

Organizer of 2018 <i>IEEE 21<sup>st</sup> ITSC</i> , 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 <i>IEEE IV Symposium</i> , 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**

- 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**

- 23<sup>rd</sup> 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) 98<sup>th</sup> 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	<i>Feb. 2020</i>
U.S. Department of Transportation National Center for Sustainable Transportation (NCST) Dissertation Award	<i>Jun. 2018</i>
Best Student Research Paper Award, Los Angeles Environmental Forum	<i>Aug. 2017</i>
UCR Dean's Distinguished Fellowship Award	<i>Fall 2015 - Spring 2017</i>
BUPT Scholarship Award	<i>Jun. 2014 &amp; Jun. 2013</i>
The Honorable Mention, The Mathematical Contest in Modeling (MCM)	<i>Feb. 2014</i>

## **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*