LIUWANG KANG

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EDUCATION

University of Virginia, Charlottesville, USA
Ph.D. program in Computer Science   08/2016- 08/2021
Clemson University, Greenville, USA
Master program in Automotive Engineering   08/2014- 05/2016
Chang'an University, Xi'an, China
Master Program in Vehicle engineering   09/2011-07/2014
Bachelor of Engineering in Vehicle engineering   09/2007-07/2011

RESEARCH PROJECTS

Internet-of-things with a focus on autonomous driving   01/2017-08/2021
Electric vehicle battery energy and security in intelligent transportation systems   07/2016-12/2016
Battery aging modeling and aging propagation in the battery pack   10/2014-06/2016

PUBLICATIONS
Journal papers:

[1] **L. Kang**, X. Zhao, and J. Ma, A New Neural Network Model for The State-of-Charge Estimation in The Battery Degradation Process, **Applied Energy**, vol. 121, 2014.

[2] **L. Kang**, A. Sarker, and H. Shen, Velocity Optimization of Pure Electric Vehicles with Traffic Dynamics and Driving Safety Considerations, ACM Transactions on Internet of Things (**TIOT**), 2021.

[3] **L. Kang**, and H. Shen, Detection and Mitigation of Sensor and CAN Bus Attacks in Vehicle Anti-lock Braking Systems, ACM Transactions on Cyber-Physical Systems (**TCPS**), 2021.

Conference papers:

[1] **L. Kang**, H. Shen, and A. Sarker, Velocity Optimization of Pure Electric Vehicles with Traffic Dynamics Consideration, Short paper, Proc. of the 37th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2017.

[2] **L. Kang**, and H. Shen, Preventing Battery Attacks on Electrical Vehicles Based on Data-driven Behavior Modeling, Proc. of the 10th ACM/IEEE International Conference on Cyber-Physical Systems (**ICCPS**), 2019.

[3] **L. Kang**, H. Shen, and Z. Li, Road Gradient Estimation Using Smartphones: Towards Accurate Estimation on Fuel Consumption and Air Pollution Emission on Roads, Proc. of the 39th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2019.

[4] **L. Kang** and H. Shen, Electric Vehicle Battery Energy Information is Enough to Track You, Proc. of the 19th ACM/IEEE Conference on Information Processing in Sensor Networks (**IPSN**), 2020.

[5] L. Yan, H. Shen, **L. Kang**, J. Zhao, C. Xu, CD-Guide: A Reinforcement Learning based Dispatching and Charging Approach for Electric Taxicabs, Proc. of the 18th IEEE International Conference on Mobile Ad Hoc and Smart Systems (**MASS**), 2020.

[6] L. Yan, H. Shen, **L. Kang**, J. Zhao, C. Xu, MobiCharger: Optimal Scheduling for Cooperative EV-to-EV Dynamic Wireless Charging, Poster, Proc. of the 40th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2020.

[7] **L. Kang** and H. Shen, Abnormal Message Detection for CAN Bus Based on Message Transmission Behaviors, Proc. of the 40th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2020.

[8] **L. Kang** and H. Shen, Attack Detection and Mitigation for Sensor and CAN Bus Attacks in Vehicle Anti-lock Braking Systems, Proc. of the 29th International Conference on Computer Communications and Networks (**ICCCN**), 2020.

[9] **L. Kang** and H. Shen, Transfer Learning-based Abnormal CAN Bus Message Detection System, Proc. of the 18th IEEE International Conference on Mobile Ad Hoc and Smart Systems (**MASS**), 2021.

[10] **L. Kang** and H. Shen, A Reinforcement Learning based Decision-making System with Aggressive Driving Behavior Consideration for Autonomous Vehicles, Proc. of the 18th IEEE International Conference on Sensing, Communication and Networking (**SECON**), 2021.

[11] **L. Kang** and H. Shen, A Data-driven Battery State-of-Health Estimation System with Aging Propagation Consideration for Electric Vehicles, Proc. of the 18th IEEE International Conference on Mobile Ad Hoc and Smart Systems (**MASS**), 2021.

[12] **L. Kang** and H. Shen, A Data-Driven Optimal Control Decision-Making System for Multiple Autonomous Vehicles, Proc. of the 6th ACM/IEEE Symposium on Edge Computing (**SEC**), 2021.

[13] **L. Kang** and H. Shen, A Control Policy based Driving Safety System for Autonomous Vehicles, Proc. of the18th IEEE International Conference on Mobile Ad Hoc and Smart Systems (**MASS**), 2021.

EMPLOYMENT

Postdoc, University of Virginia	08/2021-05/2022
Research assistant, University of Virginia	08/2016-08/2021

TEACHING EXPERIENCE

TA in CPS and Cloud Computing by Prof. Haiying Shen	Spring 2021
TA in Cloud Computing by Prof. Neal E. Magee	Fall 2020
TA in Machine Learning by Prof. Haifeng Xu	Spring 2020
TA in Mobile Application Development by Prof. Daniel G. Graham	Fall 2019
TA in Discrete Math by Prof. Kevin Sullivan	Fall 2018
TA in Database System by Prof. Abdeltawab Hendawi	Spring 2018

PATENT

DC Power Supply with Features of Storage Cell
Patent Number: 201210005207.9

HONORS

Shaanxi Provincial Excellent Student of Graduation, 2 out of 564	2011
1st Place, China Undergraduate Mathematical Contest in Modeling Shaanxi Province Sectional	2009
Fast Gear Co. Scholarship, 1 out of 564	2008
Outstanding New Student Scholarship, Chang'an University, 1 out of 300	2007

SKILLS

Software: Matlab, Python, SUMO, CarSim, AVL CRUISE.

WEBSITE:

https://lwkang.github.io/