

DONGYAO CHEN

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EDUCATION

University of Michigan Ph. D. candidate in Computer Science and Engineering	Ann Arbor, MI, USA <i>Jul. 2015 - 2020 (Expected)</i>
University of Michigan M.S. in Electrical Engineering	Ann Arbor, MI, USA <i>Sept. 2013 - Jul. 2015</i>
Shanghai Jiao Tong University B.S. in Electrical Engineering	Shanghai, China <i>Sept. 2009 - Jul. 2013</i>

EMPLOYMENT EXPERIENCES

University of Michigan Graduate Research Assistant	Ann Arbor, MI, USA <i>Sept. 2014 - Present</i>
• Working in Real-time Computing Laboratory, supervised by Prof. Kang G. Shin.	
Hewlett Packard Labs Research Intern, Networking and Mobility Team	Palo Alto, CA, USA <i>May. 2016 – Sept. 2016</i>
• Worked on building localization system with low-energy Bluetooth 4.0 beacons.	

PUBLICATIONS

TurnsMap: Enhancing Traffic Safety with Crowdsensing and Deep Learning	2019
• Dongyao Chen and Kang G. Shin	
• In Proceedings of the 2019 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2019), London, UK	
• Acceptance rate: TBD%	
LibreCAN: Automated CAN Message Translator	2019
• Mert D. Pesé, Troy Stacer, C. Andrés Campos, Eric Newberry, Dongyao Chen , and Kang G. Shin	
• In Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (CCS '19), London, UK	
• Acceptance rate: 18%	
Tracking and Locating Bluetooth Beacons with Smartphones	2017
• Dongyao Chen , Kang G. Shin, Yurong Jiang, Kyu-Han Kim	
• In proceedings of the 13th International Conference on Emerging Networking Experiments and Technologies (CoNEXT 2017), Incheon, Republic of Korea	
• Acceptance rate: 18%	
Mobile IMUs Reveal Driver's Identity From Vehicle Turns	2017

- **Dongyao Chen**, Kyong-Tak Cho, Kang G. Shin
- In arXiv:1710.04578

Invisible Sensing of Vehicle Steering with Smartphones 2015

- **Dongyao Chen**, Kyong-Tak Cho, Sihui Han, Zhizhuo Jin, and Kang G. Shin
- In Proceedings of the 13th Annual International Conference on Mobile Systems, Applications, and Services (MobiSys 2015), Florence, Italy
- Acceptance rate: 13%

Vulnerability and Protection of CSI in Multiuser MIMO Networks 2014

- Yu-Chih Tung, Sihui Han, **Dongyao Chen**, and Kang G. Shin
- In Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security (CCS 2014), Scottsdale, Arizona, USA
- Acceptance rate: 19%

NOTABLE RESEARCH PROJECTS

Dri-Fi: Mobile IMUs Reveal Driver's Identity *Dec. 2016 – Jul. 2017*

arXiv preprint: <https://arxiv.org/abs/1710.04578>

- Proposed a scheme for characterizing the driver's driving habit by using mobile IMU sensors.
- Built machine learning algorithm for identifying different drivers with high accuracy.

DriveMotion: Driving Maneuver Crowdsourcing Platform *Jun. 2017 - Oct. 2018*

Details: <http://web.eecs.umich.edu/~chendy/#drivemotion>

- Developed a spatio-temporal data collection software on both Android and iOS platforms. DriveMotion has been collecting more than 140 hours on-road driving data, with mileage over 1,720 miles.
- Designed a deep learning pipeline for extracting the driver's driving patterns from the collected data.

LocBLE: Positioning Bluetooth Beacons with Smartphones *May. 2016 – Sept. 2017*

Demo video: <https://youtu.be/556Io5MoJso>

- Proposed a positioning algorithm for locating surrounding Bluetooth beacons.
- Developed a mobile application based on the algorithm. LocBLE is able to achieve 1.5 m and 1.8 m accuracy in outdoor and indoor environment respectively.

VSense: Recognizing Driving Maneuvers with Smartphone *Dec. 2014 - Jun. 2015*

Project website: https://kabru.eecs.umich.edu/?page_id=875

- Built smartphone-based application for recognizing driving maneuvers by analyzing IMU data.
- VSense is able to detect 8 maneuvers: left/right lane change, left/right turning, U-turn, driving on curvy road, and abrupt acceleration/brake.

DriveSafe: A Collision Warning System on Mobile Platform Dec. 2013 - Mar. 2014

On-road demo: <https://youtu.be/gINMESMxjYc>

- Built an ADAS system on smartphones for alerting driver about potential tailgating accidents and unintended lane departure by fusing camera and IMU sensor data.
- Trained a Haar feature-based cascaded classifier based on over 10,000 vehicle images for achieving accurate vehicle recognition.

PEER REVIEWING ACTIVITIES

- ACM/IEEE International Conference on Cyber-Physical Systems (ICCPs) 2018
- IEEE Transactions on Mobile Computing 2016, 2018
- IEEE Transactions on Service Computing 2017
- IEEE Transactions on Vehicular Technology 2017
- ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp) 2016

PATENTS

- Fingerprinting Driver with Mobile IMU Sensors *Filed on October, 2018*
Inventors: **Dongyao Chen**, Kyong-Tak Cho and Kang G. Shin
- Bluetooth Beacon Locator *Issued on November 01, 2018*
Inventors: **Dongyao Chen**, Yurong Jiang and Kyu-Han Kim
Patent serial No. US20180317044A1
- Detecting Vehicle Maneuvers With Mobile Phones *Issued on October 27, 2016*
Inventors: **Dongyao Chen**, and Kang G. Shin
Patent serial No. US20160311442A1

STUDENTS MENTORED

- Qihao Xie, now at University of Michigan, Ann Arbor
- Shuzheng Zheng, now at University of Michigan, Ann Arbor
- Keyue Zhu, now at University of Michigan, Ann Arbor
- Kevin Li, now at University of Michigan, Ann Arbor

AWARDS

- Rackham Graduate School Travel Grant. 2017, 2015
- CoNEXT 2017 Travel Grant. 2017
- MobiSys 2015 Travel Grant. 2015
- National Scholarship, 2% of all students, **Shanghai Jiao Tong University**. 2010
- First Prize in National Chemistry Olympiad, **Henan Province, China**. 2008

REFERENCES

- Kang G. Shin
Kevin and Nancy O'Connor Professor, Computer Science and Engineering
The University of Michigan, Ann Arbor
Email:kgshin@umich.edu
- Kyu-Han Kim
Distinguished Technologist and Director
Hewlett-Packard Laboratories
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