

Songtao He

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Education

- Sept.2016- present **Massachusetts Institute of Technology**
Ph.D candidate in Electrical Engineering and Computer Science Department
Advisor: Hari Balakrishnan
Thesis Title: Enriching Digital Maps with Aerial Imagery and GPS Data
- Sept.2016- Sept.2018 **Massachusetts Institute of Technology**
M.S. in Electrical Engineering and Computer Science
- Sept.2011- June 2015 **University of Science and Technology of China**
B.E. in Computer Science and Technology

Research Interests

Mobile Systems and Applied Machine Learning.

Selected Publications

- Lane-Level Street Map Extraction from Aerial Imagery**
[Songtao He](#), Hari Balakrishnan
WACV, Waikoloa, HI, January 2022
- Self-Supervised Multi-Object Tracking with Cross-input Consistency**
Favyen Bastani, [Songtao He](#), Samuel Madden
NeurIPS, Virtual, December 2021
- Inferring High-Resolution Traffic Accident Risk Maps Based on Satellite Imagery and GPS Trajectories**
[Songtao He](#), Amin Sadeghi, Sanjay Chawla, Mohammad Alizadeh, Hari Balakrishnan, Samuel Madden
ICCV, Virtual, October 2021
- Sat2Graph: Road Graph Extraction through Graph-Tensor Encoding**
[Songtao He](#), Favyen Bastani, Satvat Jagwani, Mohammad Alizadeh, Hari Balakrishnan, Sanjay Chawla, Mohamed M. Elshrif, Samuel Madden, Amin Sadeghi
ECCV, Glasgow, Scotland, August 2020
- BeeCluster: Drone Orchestration via Predictive Optimization**
[Songtao He](#), Favyen Bastani, Arjun Balasingam, Karthik Gopalakrishnan, Ziwen Jiang, Mohammad Alizadeh, Hari Balakrishnan, Michael Cafarella, Tim Kraska, Sam Madden
MobiSys, Toronto, Canada, June 2020
- MIRIS: Fast Object Track Queries in Video**
Favyen Bastani, [Songtao He](#), Arjun Balasingam, Karthik Gopalakrishnan, Mohammad Alizadeh, Hari Balakrishnan, Michael Cafarella, Tim Kraska, Sam Madden
SIGMOD, Portland, OR, June 2020
- RoadTagger: Robust Road Attribute Inference with Graph Neural Networks**
[Songtao He](#), Favyen Bastani, Satvat Jagwani, Edward Park, Sofiane Abbar, Mohammad Alizadeh, Hari Balakrishnan, Sanjay Chawla, Samuel Madden, Mohammad Amin Sadeghi
AAAI, New York, NY, February 2020
- RoadRunner: Improving the Precision of Road Network Inference from GPS Trajectories**
[Songtao He](#), Favyen Bastani, Sofiane Abbar, Mohammad Alizadeh, Hari Balakrishnan, Sanjay Chawla, Sam Madden
ACM SIGSPATIAL, Seattle, WA, November 2018
- RoadTracer: Automatic Extraction of Road Networks from Aerial Images**
Favyen Bastani, [Songtao He](#), Mohammad Alizadeh, Hari Balakrishnan, Samuel Madden, Sanjay Chawla, Sofiane Abbar, David DeWitt
CVPR, Salt Lake City, UT, June 2018

10.Reducing Latency by Eliminating Synchrony

Min Hong Yun, Songtao He, Lin Zhong

World Wide Web conference (WWW), Perth, Australia, April 2017

11.Optimizing Smartphone Power Consumption through Dynamic Resolution Scaling

Songtao He, Yunxin Liu and Hucheng Zhou

MobiCom, Paris, France, Sept 2015

Honors and Awards

- Best Demo Award, ACM MobiCom 2015
- Award of Excellence in the Microsoft Star of Tomorrow Internship Program (2015)
- Guo Moruo Scholarship, the highest honor of undergraduates at USTC (2015)
- 2nd Place Overall Winner, World Final, ISC14 Student Cluster Competition (2014)
- Google Excellence Scholarship (2014)
- National Scholarship, Ministry of Education, China (2012,2013)

Experience

- 2019 **Research Intern**, Mobility and Networking Group, Microsoft Research (Redmond)
Advisor: Sanjeev Mehrotra, Project: Edge computing with Kubernetes
- 2015-2016 **Research Intern**, Rice Efficient Computing Group (RECG), Rice University
Advisor: Prof. Lin Zhong, Project: Reducing Smartphone Latency
- 2014-2015 **Research Intern**, Wireless and Networking Group, Microsoft Research Asia (MSRA)
Advisor: Dr. Yunxin Liu, Project: Improving Smartphone Energy Efficiency
- 2014 **Research Intern**, Systems Research Group, The University of Hong Kong (HKU)
Advisor: Prof. Cho-li Wang, Project: Automatic Parallelization for GPU

Teaching

- TA, 6.S062 Mobile and Sensor Computing, Spring 2016

Professional Service

- Reviewer, International Conference on Learning Representations (ICLR), 2022
- Reviewer, Neural Information Processing Systems (NeurIPS), 2021
- Reviewer, IEEE International Conference on Computer Vision (ICCV), 2021
- External Reviewer, ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2021
- Reviewer, IEEE Transactions on Neural Networks and Learning Systems, 2021
- Reviewer, IEEE Conference on Computer Vision and Pattern Recognition(CVPR), 2021,2022
- Reviewer, AAAI Conference on Artificial Intelligence (AAAI), 2021, 2022
- Reviewer, ACM Transactions on Spatial Algorithms and Systems, 2020
- Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2019
- Reviewer, IEEE Geoscience and Remote Sensing Letters, 2019