Songtao He

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Education

Sept.2016-present	**Massachusetts Institute of Technology** Ph.D candidate in Electrical Engineering and Computer Science Department Advisors: Hari Balakrishnan and Mohammad Alizadeh
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 Technoloy

Research Interests

Mobile and Sensing Systems, Applied Machine Learning, Machine Learning for System and System for Machine Learning.

Selected Publications

- **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
  Computer Vision and Pattern Recognition (CVPR), Salt Lake City, UT, June 2018
- **Reducing Latency by Eliminating Synchrony**
  Min Hong Yun, Songtao He, Lin Zhong
  World Wide Web conference (WWW), Perth, Australia, April 2017
- **Optimizing Smartphone Power Consumption through Dynamic Resolution Scaling**
  Songtao He, Yunxin Liu and Hucheng Zhou
  ACM 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)

Research 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, Projects: Reduce Smartphone Latency
2014-2015	**Research Intern**, Wireless and Networking Group, Microsoft Research Asia (MSRA) Advisor: Dr. Yunxin Liu, Project: Improve 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, IEEE International Conference on Computer Vision (ICCV), 2021
- Reviewer, IEEE Transactions on Neural Networks and Learning Systems, 2021
- Reviewer, IEEE Conference on Computer Vision and Pattern Recognition(CVPR), 2021
- Reviewer, AAAI Conference on Artificial Intelligence (AAAI), 2021
- 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