Shaohan Hu

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RESEARCH
INTERESTS

I am broadly interested in IoT, Ubiquitous Computing, Computer Vision, Machine Learning, Augmented & Virtual Reality, Quantum Computing, and Cloud Computing.

EMPLOYMENT

JPMC Global Technology Applied Research, New York, NY   January 2021 - Present
Executive Director

IBM Research, Yorktown Heights, NY   September 2016 - December 2020
Research Staff Member

University of Illinois at Urbana-Champaign, Urbana, IL   January 2012 - December 2016
Research Assistant

Intel Corporation, Santa Clara, CA   May 2014 - September 2014
Graduate Intern Technical

University of Illinois at Urbana-Champaign, Urbana, IL   August 2011 - December 2011
Teaching Assistant

Dartmouth College, Hanover, NH   September 2008 - September 2010
Teaching Assistant

University of Massachusetts at Amherst, Amherst, MA   January 2008 - May 2008
Teaching Assistant

EDUCATION

PhD, Computer Science   May 2017
University of Illinois at Urbana-Champaign, IL, USA

MS, Computer Science   June 2011
Dartmouth College, NH, USA

BS, Computer Science, Mathematics and Statistics   May 2008
University of Massachusetts at Amherst, MA, USA

PROFESSIONAL
ACTIVITIES

Technical Program Committee

Q-SE 2021–2024
    International Workshop on Quantum Software Engineering
QP 2024
    International Workshop on the Art, Science, and Engineering of Quantum Programming
WWW 2018, 2019, 2023
    The Web Conference
AICHALLENGEIOT 2021
    International Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things
ICCCN 2019
    International Conference on Computer Communications and Networks
IoTDI 2019
    International Conference on Internet of Things Design and Implementation - Posters, Demos
EMERGING 2017–2019
    International Conference on Emerging Networks and Systems Intelligence

Conference Reviewer

Journal Reviewer

PUBLICATIONS

arXiv 2024   Hsiang Hsu, Guihong Li, **Shaohan Hu**, Chun-Fu (Richard) Chen, *Dropout-Based Rashomon Set Exploration for Efficient Predictive Multiplicity Estimation*, arXiv - Computer Science, February, 2024

Quantum 2023   El Amine Cherrat, Snehal Raj, Iordanis Kerenidis, Abhishek Shekhar, Ben Wood, Jon Dee, Shouvanik Chakrabarti, Richard Chen, Dylan Herman, **Shaohan Hu**, Pierre Minssen, Ruslan Shaydulin, Yue Sun, Romina Yalovetzky, Marco Pistoia, *Quantum Deep Hedging*, Quantum – The Open Journal for Quantum Science (Quantum), Volume 7, Page 1191, November, 2023

Comms Phys 2023   Dylan Herman, Ruslan Shaydulin, Yue Sun, Shouvanik Chakrabarti, **Shaohan Hu**, Pierre Minssen, Arthur Rattew, Romina Yalovetzky, Marco Pistoia, *Constrained optimization via quantum Zeno dynamics*, Nature - Communications Physics (Comms Phys), Volume 6, Number 219, August, 2023

arXiv 2023   Ruslan Shaydulin, Changhao Li, Shouvanik Chakrabarti, Matthew DeCross, Dylan Herman, Niraj Kumar, Jeffrey Larson, Danylo Lykov, Pierre Minssen, Yue Sun, Yuri Alexeev, Joan M. Dreiling, John P. Gaebler, Thomas M. Gatterman, Justin A. Gerber, Kevin Gilmore, Dan Gresh, Nathan Hewitt, Chandler V. Horst, **Shaohan Hu**, Jacob Johansen, Mitchell Matheny, Tanner Mengle, Michael Mills, Steven A. Moses, Brian Neyenhuis, Peter Siegfried, Romina Yalovetzky, Marco Pistoia, *Evidence of Scaling Advantage for the Quantum Approximate Optimization Algorithm on a Classically Intractable Problem*, arXiv - Quantum Physics, August, 2023

IJGI 2023   Stefania Zourlidou, Monika Sester, **Shaohan Hu**, *Recognition of Intersection Traffic Regulations from Crowdsourced Data*, ISPRS International Journal of Geo-Information (IJGI), Volume 12, Number 1, January, 2023

arXiv 2022 Chun-Fu Chen, **Shaohan Hu**, Zhonghao Shi, Prateek Gulati, Bill Moriarty, Marco Pistoia, Vincenzo Piuri, Pierangela Samarati, *MaSS: Multi-attribute Selective Suppression*, arXiv - Computer Science - Machine Learning, October, 2022

Sci Rep 2022 Pradeep Niroula, Ruslan Shaydulin, Romina Yalovetzky, Pierre Minssen, Dylan Herman, **Shaohan Hu**, Marco Pistoia, *Constrained Quantum Optimization for Extractive Summarization on a Trapped-ion Quantum Computer*, Nature - Scientific Reports (Sci Rep), Volume 17, Number 17171, October, 2022

arXiv 2022 Dylan Herman, Ruslan Shaydulin, Yue Sun, Shouvanik Chakrabarti, **Shaohan Hu**, Pierre Minssen, Arthur Rattew, Romina Yalovetzky, Marco Pistoia, *Portfolio Optimization via Quantum Zeno Dynamics on a Quantum Processor*, arXiv - Quantum Physics, October, 2022

ESORICS 2022 Bill Moriarty, Chun-Fu Chen, **Shaohan Hu**, Sean Moran, Marco Pistoia, Vincenzo Piuri, Pierangela Samarati, *Utility-Preserving Biometric Information Anonymization*, European Symposium on Research in Computer Security (ESORICS), Copenhagen, Denmark, September 26-30, 2022

Quantum 2021 Sergey Bravyi, Ruslan Shaydulin, **Shaohan Hu**, Dmitri Maslov, *Clifford Circuit Optimization with Templates and Symbolic Pauli Gates*, Quantum – The Open Journal for Quantum Science (Quantum), Volume 5, Page 580, November, 2021

ICCAD 2021 Marco Pistoia, Syed Farhan Ahmad, Akshay Ajagekar, Alexander Buts, Shouvanik Chakrabarti, Dylan Herman, **Shaohan Hu**, Andrew Jena, Pierre Minssen, Pradeep Niroula, Arthur Rattew, Yue Sun, Romina Yalovetzky, *Quantum Machine Learning for Finance*, IEEE/ACM International Conference On Computer Aided Design (ICCAD), Munich, Germany, December 23, 2021

TOSN 2021 Yi Zhu, Abhishek Gupta, **Shaohan Hu**, Weida Zhong, Lu Su, Chunming Qiao, *Driver Behavior-aware Parking Availability Crowdsensing System Using Truth Discovery*, ACM Transactions on Sensor Networks (TOSN), Volume 17, Number 4, July, 2021

ICST 2020 Marco Pistoia, Peng Liu, Richard Chen, **Shaohan Hu**, Stephen Wood, *Parallelization of Classical Numerical Optimization in Quantum Variational Algorithms*, IEEE International Conference on Software Testing, Validation and Verification (ICST), Porto, Portugal, August 24-28, 2020

arXiv 2020 Scott Schneider, Xavier Guerin, **Shaohan Hu**, Kun-Lung Wu, *A Cloud Native Platform for Stateful Streaming*, arXiv - Distributed, Parallel, and Cluster Computing, May, 2020

IPSN 2020 Abhishek Gupta, **Shaohan Hu**, Weida Zhong, Adel Sadek, Lu Su, Chunming Qiao, *Road Grade Estimation Using Crowd-sourced Smartphone Data*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Sydney, Australia, April 21-24, 2020

arXiv 2019 Arthur G. Rattew, **Shaohan Hu**, Marco Pistoia, Richard Chen, Steve Wood, *A Domain-agnostic, Noise-resistant, Hardware-efficient Evolutionary Variational Quantum Eigensolver*, arXiv - Quantum Physics, October, 2019

ICDCS 2019	Tarek Abdelzaher, Shuochao Yao, Yifan Hao, Yiran Zhao, Ailing Piao, Huajie Shao, Dongxin Liu, Shengzhong Liu, **Shaohan Hu**, Dulanga Weerakoon, Kasthuri Jayarajah, Archan Misra, *Eugene: Towards Deep Intelligence as a Service*, IEEE International Conference on Distributed Computing Systems (ICDCS), Dallas, Texas USA, July 7-10, 2019
Computer 2019	**Shaohan Hu**, Peng Liu, Chun-Fu Richard Chen, Marco Pistoia, Jay Gambetta, *Reduction-based Problem Mapping for Quantum Computing*, IEEE Computer, Volume 52, Number 6, June, 2019
Computer 2019	Peng Liu, **Shaohan Hu**, Marco Pistoia, Chun-Fu Richard Chen, Jay Gambetta, *Stochastic Optimization of Quantum Programs*, IEEE Computer, Volume 52, Number 6, June, 2019
DAC 2019	**Shaohan Hu**, Dmitri Maslov, Marco Pistoia, Jay Gambetta, *Efficient Circuits for Quantum Search over 2D Square Lattice Architecture*, Design Automation Conference - Latest Breaking Results (DAC), Las Vegas, Nevada USA, June 2-6, 2019
WWW 2019	Shuochao Yao, Ailing Piao, Wenjun Jiang, Yiran Zhao, Huajie Shao, Shengzhong Liu, Dongxin Liu, Jinyang Li, Tianshi Wang, **Shaohan Hu**, Lu Su, Jiawei Han, Tarek Abdelzaher, *STFNets: Learning Sensing Signals from the Time-Frequency Perspective with Short-Time Fourier Neural Networks*, The Web Conference (WWW), San Francisco, CA USA, May 13-17, 2019
INFOCOM 2019	Shuochao Yao, Yiran Zhao, Huajie Shao, Dongxin Liu, Shengzhong Liu, Yifan Hao, Ailing Piao, **Shaohan Hu**, Lu Su, Tarek Abdelzaher, *SADeepSense: Self-Attention Deep Learning Framework for Heterogeneous On-Device Sensors in Internet of Things Applications*, IEEE International Conference on Computer Communications (INFOCOM), Paris, France, April 29-May 2, 2019
IMWUT 2018	Shuochao Yao, Yiran Zhao, Huajie Shao, Chao Zhang, Aston Zhang, **Shaohan Hu**, Dongxin Liu, Shengzhong Liu, Lu Su, Tarek F. Abdelzaher, *SenseGAN: Enabling Deep Learning for Internet of Things with a Semi-Supervised Framework*, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 2, Number 3, September, 2018. (Presented at UBICOMP 2018)
ICSE 2018	**Shaohan Hu**, Peng Liu, Chun-Fu Richard Chen, Marco Pistoia, *Automatically Solving NP-Complete Problems on a Quantum Computer*, International Conference on Software Engineering (ICSE), Gothenburg, Sweden, May 27-June 3, 2018
EMDL 2018	Shuochao Yao, Yiran Zhao, **Shaohan Hu**, Tarek F. Abdelzaher, *QualityDeepSense: Quality-Aware Deep Learning Framework for Internet of Things Applications with Sensor-Temporal Attention*, International Workshop on Embedded and Mobile Deep Learning (EMDL), Munich, Germany, June 15, 2018
Computer 2018	Shuochao Yao, Yiran Zhao, Aston Zhang, **Shaohan Hu**, Huajie Shao, Chao Zhang, Lu Su, Tarek Abdelzaher, *Deep Learning for the Internet of Things*, IEEE Computer, Volume 51, Number 5, May, 2018
TPDS 2018	Wenjun Jiang, Chenglin Miao, Lu Su, Qi Li, **Shaohan Hu**, Shiguang Wang, Jing Gao, Hengchang Liu, Tarek F. Abdelzaher, Jiawei Han, Xue Liu, Yan Gao, Lance Kaplan, *Towards Quality Aware Information Integration in Distributed Sensing Systems*, IEEE Transactions on Parallel and Distributed Systems (TPDS), Volume 29, Number 1, January, 2018

JSAN 2018   Jongdeog Lee, Kelvin Marcus, Tarek Abdelzaher, Md Tanvir A. Amin, Amotz Bar-Noy, William Dron, Ramesh Govindan, Reginald Hobbs, **Shaohan Hu**, Jung-Eun Kim, Lui Sha, Shuochao Yao, Yiran Zhao, *Athena: Towards Decision-Centric Anticipatory Sensor Information Delivery*, Journal of Sensor and Actuator Networks (JSAN), Volume 7, Number 1, January, 2018

IMWUT 2017   Yiran Zhao, Shuochao Yao, Shen Li, **Shaohan Hu**, Huajie Shao, Tarek Abdelzaher, *VibeBin: A Vibration-Based Waste Bin Level Detection System*, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 1, Number 3, September, 2017. (Presented at UBICOMP 2017)

TCPS 2017   Hongwei Wang, Yunlong Gao, **Shaohan Hu**, Shiguang Wang, Renato Mancuso, Minje Kim, Poliang Wu, Lu Su, Lui Sha, Tarek Abdelzaher, *On Exploiting Structured Human Interactions to Enhance Sensing Accuracy in Cyber-physical Systems*, ACM Transactions on Cyber-Physical Systems (TCPS), Volume 1, Number 3, July, 2017

ICDCS 2017   Tarek Abdelzaher, Tanvir Al Amin, Amotz Bar-Noy, William Dron, Ramesh Govindan, Reginald Hobbs, **Shaohan Hu**, Jung-Eun Kim, Jongdeog Lee, Kelvin Marcus, Shuochao Yao Yiran Zhao, *Decision-driven Execution: A Distributed Resource Management Paradigm for the Age of IoT*, International Conference on Distributed Computing Systems (ICDCS), Atlanta, GA USA, June 5-8, 2017

ICDCS 2017   Shen Li, Md Tanvir Al Amin, Raghu Ganti, Mudhakar Srivatsa, **Shaohan Hu**, Yiran Zhao Tarek Abdelzaher, *Stark: Optimizing In-Memory Computing For Dynamic Dataset Collections*, International Conference on Distributed Computing Systems (ICDCS), Atlanta, GA USA, June 5-8, 2017

VTC 2017   Yunfei Hou, Abhishek Gupta, Tong Guan, **Shaohan Hu**, Lu Su, Chunming Qiao, *VehSense: Slippery Road Detection Using Smartphones*, IEEE Vehicular Technology Conference (VTC), Sydney, Australia, June 4-7, 2017

TMC 2017   Chao Xu, **Shaohan Hu**, Zheng Wei, Tarek F. Abdelzaher, Pan Hui, Zhiheng Xie, Hengchang Liu, John Stankovic, *Efficient 3G/4G Budget Utilization in Mobile Sensing Applications*, IEEE Transactions on Mobile Computing (TMC), Volume 16, Number 6, June, 2017

ICCPS 2017   Yiran Zhao, Shen Li, **Shaohan Hu**, Lu Su, Shuochao Yao, Huajie Shao Tarek Abdelzaher, *GreenDrive: A Smartphone-based Intelligent Speed Adaptation System With Real-time Traffic Signal Prediction*, International Conference on Cyber-Physical Systems (ICCPS), Pittsburgh, PA USA, April 18-21, 2017. (**Best paper award**)

WWW 2017   Shuochao Yao, **Shaohan Hu**, Yiran Zhao, Aston Zhang, Tarek Abdelzaher, *DeepSense: A Unified Deep Learning Framework for Time-Series Mobile Sensing Data Processing*, International International World Wide Web Conference (WWW), Perth, Australia, April 3-7, 2017

TMC 2016   Xiaoshan Sun, **Shaohan Hu**, Lu Su, Tarek F. Abdelzaher, Pan Hui, Wei Zheng, Hengchang Liu, John Stankovic, *Participatory Sensing Meets Opportunistic Sharing: Automatic Phone-to-Phone Communication in Vehicles*, IEEE Transactions on Mobile Computing (TMC), Volume 15, Number 10, October, 2016

VLDB 2016   Yiran Zhao, Shen Li, **Shaohan Hu**, Hongwei Wang, Shuochao Yao, Huajie Shao, Tarek Abdelzaher, *An Experimental Evaluation of Datacenter Workloads On Low-Power Embedded Micro Servers*, International Conference on Very Large Data Bases (VLDB), New Delhi, India, September 5-9, 2016

ICCM 2016	Christian Lebiere, Don Morrison, Tarek Abdelzaher, **Shaohan Hu**, Cleotilde Gonzalez, Norbou Buchler, Vladislav D. Veksler, *Cognitive Models of Prediction as Decision Aids*, International Conference on Cognitive Modeling (ICCM), College Park, PA USA, August 4-6, 2016
ICDCS 2016	Shuochao Yao, **Shaohan Hu**, Shen Li, Yiran Zhao, Lu Su, Lance Kaplan, Aylin Yener, Tarek F. Abdelzaher, *On Source Dependency Models for Reliable Social Sensing: Algorithms and Fundamental Error Bound*, IEEE International Conference on Distributed Computing Systems (ICDCS), Nara, Japan, June 27-30, 2016
IPSN 2016	Shuochao Yao, Md Tanvir Amin, Lu Su, **Shaohan Hu**, Shen Li, Shiguang Wang, Yiran Zhao, Tarek Abdelzaher, Lance Kaplan, Charu Aggarwal, Aylin Yener, *Recursive Ground Truth Estimator for Social Data Streams*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Vienna, Austria, April 11-14, 2016
TMC 2016	Fatemeh Saremi, Omid Fatemieh, Hossein Ahmadi, Hongyan Wang, Tarek Abdelzaher, Raghu Ganti, Hengchang Liu, **Shaohan Hu**, Shen Li, Lu Su, *Experiences with GreenGPS – Fuel-Efficient Navigation using Participatory Sensing*, IEEE Transactions on Mobile Computing (TMC), Volume 15, Number 3, March, 2016
RTSS 2015	**Shaohan Hu**, Shuochao Yao, Haiming Jin, Yiran Zhao, Yitao Hu, Xiaochen Liu, Nooreddin Naghibolhosseini, Shen Li, Akash Kapoor, William Dron, Lu Su, Amotz Bar-Noy, Pedro Szekely, Ramesh Govindan, Reginald Hobbs, Tarek F. Abdelzaher, *Data Acquisition for Real-time Decision-making under Freshness Constraints*, IEEE Real-Time Systems Symposium (RTSS), San Antonio, TX USA, December 1-4, 2015
JRTS 2015	Dong Wang, Tarek Abdelzaher, Lance Kaplan, Raghu Ganti, **Shaohan Hu**, Hengchang Liu, *Reliable Social Sensing with Physical Constraints: Analytic Bounds and Performance Evaluation*, Journal of Real-Time Systems (JRTS), Volume 51, Number 6, November, 2015
UbiComp 2015	**Shaohan Hu**, Lu Su, Shen Li, Shiguang Wang, Chenji Pan, Siyu Gu, Md Tanvir Amin, Hengchang Liu, Suman Nath, Romit Roy Choudhury, Tarek F. Abdelzaher, *Experiences with eNav: A Low-power Vehicular Navigation System*, ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), Osaka, Japan, September 7-11, 2015
ATC 2015	Shen Li, **Shaohan Hu**, Raghu Ganti, Mudhakar Srivatsa, Tarek Abdelzaher, *Pyro: A Spatial-Temporal Big-Data Storage System for Dynamic Workload Hotspots*, USENIX Annual Technical Conference (ATC), Santa Clara, CA USA, July 8-10, 2015
TOSN 2015	**Shaohan Hu**, Lu Su, Hengchang Liu, Hongyan Wang, Tarek F. Abdelzaher, *SmartRoad: Smartphone-based Crowd Sensing for Traffic Regulator Detection and Identification*, ACM Transactions on Sensor Networks (TOSN), Volume 11, Number 4, July, 2015
DCOSS 2015	**Shaohan Hu**, Shen Li, Shuochao Yao, Lu Su, Ramesh Govindan, Reginald Hobbs, Tarek F. Abdelzaher, *On Exploiting Logical Dependencies for Minimizing Additive Cost Metrics in Resource-Limited Crowdsensing*, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), Fortaleza, Brazil, June 10-12, 2015

IPSN 2015   Shiguang Wang, Lu Su, Shen Li, **Shaohan Hu**, Tanvir Amin, Hongwei Wang, Shuochao Yao, Lance Kaplan, Tarek Abdelzaher, *Scalable Social Sensing of Interdependent Phenomena*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Seattle, WA USA, April 13-17, 2015

RTAS 2015   Shen Li, **Shaohan Hu**, Tarek Abdelzaher, *The Packing Server for Real-time Scheduling of MapReduce Workflows*, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Seattle, WA USA, April 13-16, 2015

ICCPS 2015   Yunlong Gao, **Shaohan Hu**, Renato Mancuso, Hongwei Wang, Minje Kim, PoLiang Wu, Lu Su, Lui Sha, Tarek Abdelzaher, *Exploiting Structured Human Interactions to Enhance Estimation Accuracy in Cyber-physical Systems*, International Conference on Cyber-Physical Systems (ICCPS), Seattle, WA USA, April 14-16, 2015

RTSS 2014   Lu Su, Qi Li, **Shaohan Hu**, Shiguang Wang, Jing Gao, Hengchang Liu, Tarek Abdelzaher, Jiawei Han, Xue Liu, Yan Gao, Lance Kaplan, *Generalized Decision Aggregation in Distributed Sensing Systems*, IEEE Real-Time Systems Symposium (RTSS), Rome, Italy, December 2-5, 2014

ICDCS 2014   Shen Li, **Shaohan Hu**, Shiguang Wang, Lu Su, Tarek Abdelzaher, Indranil Gupta, Richard Pace, *WOHA: Deadline-Aware Map-Reduce Workflow Scheduling Framework over Hadoop Cluster*, International Conference on Distributed Computing Systems (ICDCS), Madrid, Spain, June 30-July 3, 2014

ICAC 2014   Shen Li, **Shaohan Hu**, Shiguang Wang, Siyu Gu, Chenji Pan, Tarek F. Abdelzaher, *WattValet: Heterogenous Energy Storage Management in Data Centers for Improved Power Capping*, International Conference on Autonomic Computing (ICAC), Philadelphia, PA USA, June 18-20, 2014

DCOSS 2014   Siyu Gu, Chenji Pan, Hengchang Liu, Shen Li, **Shaohan Hu**, Lu Su, Shiguang Wang, Dong Wang, Md Tanvir A Amin, Ramesh Govindan, Charu Aggarwal, Raghu Ganti, Mudhakar Srivatsa, Amotz Bar-Noy, Peter Terlecky, Tarek Abdelzaher, *Data Extrapolation in Social Sensing for Disaster Response*, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), Marina Del Rey, CA USA, May 26-28, 2014

UIUC-TR 2014   Dong Wang, Tarek F. Abdelzaher, Lance Kaplan, Raghu Ganti, **Shaohan Hu**, Hengchang Liu, *Reliable Social Sensing with Physical Dependencies: Analytic Bounds and Performance Evaluation*, UIUC Technical Report, May 15, 2014

INFOCOM 2014   **Shaohan Hu**, Hengchang Liu, Lu Su, Hongyan Wang, Tarek Abdelzaher, Pan Hui, Wei Zheng, Zhiheng Xie, John Stankovic, *Towards Automatic Phone-to-Phone Communication for Vehicular Networking Applications*, IEEE International Conference on Computer Communications (INFOCOM), Toronto, Canada, April 27-May 2, 2014

UIUC-TR 2014   **Shaohan Hu**, Lu Su, Shen Li, Shiguang Wang, Chenji Pan, Siyu Gu, Md Tanvir Amin, Hengchang Liu, Suman Nath, Romit Roy Choudhury, Tarek F. Abdelzaher, *eNav: Smartphone-based Energy Efficient Location Sensing for Low-Power Vehicular Navigation*, UIUC Technical Report, April 25, 2014

IPSN 2014   **Shaohan Hu**, Lu Su, Shen Li, Shiguang Wang, Chenji Pan, Siyu Gu, Md Tanvir Al Amin, Hengchang Liu, Suman Nath, Romit Roy Choudhury, Tarek F. Abdelzaher, *Poster Abstract: eNav – a Smartphone-based Energy Efficient Vehicular Navigation System*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Berlin, Germany, April 15-17, 2014. (**Best poster award**)

PUC 2014   Nicholas D. Lane, Ye Xu, Hong Lu, **Shaohan Hu**, Tanzeem Choudhury, Andrew T. Campbell, Feng Zhao, *Community Similarity Networks*, ACM/Springer Journal of Personal and Ubiquitous Computing (PUC), Volume 18, Number 2, February, 2014

RTSS 2013   Dong Wang, Tarek Abdelzaher, Lance Kaplan, Raghu Ganti, **Shaohan Hu**, Hengchang Liu, *Exploitation of Physical Constraints for Reliable Social Sensing*, IEEE Real-Time Systems Symposium (RTSS), Vancouver, Canada, December 4-6, 2013

SenSys 2013   Hengchang Liu, Siyu Gu, Chenji Pan, Wei Zheng, Shen Li, **Shaohan Hu**, Shiguang Wang, Dong Wang, Tanvir Amin, Lu Su, Zhiheng Xie, Ramesh Govindan, Charu Aggarwal, Amotz Barnoy, Tarek Abdelzaher, *Demo Abstract: Extrapolation from Participatory Sensing Data*, ACM Conference on Embedded Networked Sensor Systems (SenSys), Rome, Italy, November 11-15, 2013

UIUC-TR 2013   **Shaohan Hu**, Hengchang Liu, Lu Su, Hongyan Wang, Tarek Abdelzaher, *SmartRoad: A Mobile Phone Based Crowd-Sourced Road Sensing System*, UIUC Technical Report, August 30, 2013

ICCCN 2013   Shiguang Wang, **Shaohan Hu**, Shen Li, Hengchang Liu, Md Yusuf Sarwar Uddin, Tarek Abdelzaher, *MINERVA: Information-Centric Programming for Social Sensing*, International Conference on Computer Communications and Networks (ICCCN), Nassau, Bahamas, July 30-August 2, 2013

ICDCS 2013   Shen Li, Shiguang Wang, Fan Yang, **Shaohan Hu**, Fatemeh Saremi, Tarek Abdelzaher, *Proteus: Power Proportional Memory Cache Cluster in Data Centers*, International Conference on Distributed Computing Systems (ICDCS), Philadelphia, PA USA, July 8-11, 2013

UIUC-TR 2013   **Shaohan Hu**, Lu Su, Hengchang Liu, Hongyan Wang, Tarek Abdelzaher, *SmartRoad: A Crowd-Sourced Traffic Regulator Detection and Identification System*, UIUC Technical Report, April 18, 2013

INFOCOM 2013   Hengchang Liu, **Shaohan Hu**, Wei Zheng, Zhiheng Xie, Shiguang Wang, Pan Hui, Tarek F. Abdelzaher, *Efficient 3G Budget Utilization in Mobile Participatory Sensing Applications*, IEEE International Conference on Computer Communications (INFOCOM), Turin, Italy, April 14-19, 2013

IPSN 2013   **Shaohan Hu**, Lu Su, Hengchang Liu, Hongyan Wang, Tarek Abdelzaher, *Poster Abstract: SmartRoad: A Crowd-Sourced Traffic Regulator Detection and Identification System*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Philadelphia, PA USA, April 8-11, 2013

RTSS 2012   Lu Su, **Shaohan Hu**, Shen Li, Feng Liang, Jing Gao, Tarek F. Abdelzaher, Jiawei Han, *Quality of Information based Data Selection and Transmission in Wireless Sensor Networks*, IEEE Real-Time Systems Symposium (RTSS), San Juan, Puerto Rico, December 4-7, 2012

UbiComp 2011   Nicholas D. Lane, Ye Xu, Hong Lu, **Shaohan Hu**, Tanzeem Choudhury, Andrew T. Campbell, Feng Zhao, *Enabling Large-scale Human Activity Inference on Smartphones using Community Similarity Networks (CSN)*, International Conference on Ubiquitous Computing (UbiComp), Beijing, China, September 17-21, 2011. (**Best paper nominee**)

MobiHeld 2010	Andrew T. Campbell, Tanzeem Choudhury, **Shaohan Hu**, Hong Lu, Matthew K. Mukerjee, Mashfiqui Rabbi, Rajeev D. S. Raizada, *NeuroPhone: Brain-Mobile Phone Interface using a Wireless EEG Headset*, ACM SIGCOMM Workshop on Networking, Systems, and Applications on Mobile Handhelds (MobiHeld), New Delhi, India, August 30, 2010
PAKDD 2010	Pallika Kanani, Andrew McCallum, **Shaohan Hu**, *Resource-bounded Information Extraction: Acquiring Missing Feature Values On Demand*, Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), Hyderabad, India, June 21-24, 2010. (**Best student paper runner-up award**)

PATENTS

Automatic Quantum Searching of Object Database . . . . Granted, 2022
US20200183938
Simplified Quantum Programming . . . . Granted, 2022
US20190220782
Quantum Algorithm Concatenation . . . . Granted, 2021
US20200097859
Cognitive Software Development . . . . Granted, 2020
US10832173
Parallelization of Numeric Optimizers . . . . Granted, 2020
US10831495
Quantum Computations of Classical Specifications . . . . Granted, 2020
US10803395
Multi control Quantum State Inversion Gate . . . . Granted, 2020
US10637480
Parallelization of Numeric Optimizers . . . . Granted, 2020
US10713055
Systems and Methods for Anonymizing a Dataset of Biometric Data while Retaining Data Utility . . . . Pending, 2022
US20220198061
Partitioned template matching and symbolic peephole optimization . . . . Pending, 2020
US20220129411
Quantum Reinforcement Learning Agent . . . . Pending, 2019
US20210049498
Quantum Computational Method and Device . . . . Pending, 2019
US20200342293
Monte Carlo Markov Chain based Quantum Program Optimization . . . . Pending, 2018
US20200042882
Adaptive Quantum Circuit Construction for Multiple Controlled Not Gates . . . . Pending, 2018
US20200202247

TEACHING

University of Illinois at Urbana-Champaign
- **Teaching Assistant**
  CS 125: Introduction to Computer Science
  Basic Data Structure, Algorithm, OOP using Java

Dartmouth College
- **Teaching Assistant**
  CS 23: Software Design and Implementation — or, how to be a hacker
  Linux Bash scripting, design and implementation using C: web search (data crawling, indexing, and querying), and embedded Linux environment distributed concurrent system (remote robot control system)

- **Teaching Assistant**
  CS 8: Problem Solving with Computer Science
  Functional programming, Haskell language

- **Teaching Assistant**

CS 5: Introduction to Computer Science
Basic Data Structure, OOP using Java

- **Teaching Assistant**
  CS 4: Concepts in Computing
  Overview of computing and computer science, basic programming using html/css/javascript, debugging, design

University of Massachusetts at Amherst
- **Teaching Assistant**
  Math 300: Fundamental Concepts of Mathematics
  Discrete mathematics, number theory, logics, set theory, rigorous proofs

- **Teaching Assistant**
  CS 311: Introduction to Algorithms
  Basic algorithm design, analysis, and implementations, sorting, searching, string processing, graphs

AWARDS AND HONORS	ICCPS Best Paper Award, April 2017
	IPSN Best Poster Award, April 2014
	Teachers Rated Excellent, Department of Computer Science, UIUC, March 2012
	UBICOMP Best Paper Nominee, September 2011
	Best TA, Department of Computer Science, Dartmouth College, September 2010
	PAKDD Best Student Paper Runner-up, June 2010
	Outstanding Graduate Student Teacher, Dartmouth Center for the Advancement of Learning, Dartmouth College, April 2010
	CSEM (Computer Science, Engineering and Mathematics) Scholarship, UMass Amherst, January 2005–May 2008
	Dean's List Honors, UMass Amherst, January 2005–May 2008
	Barksdale Scholarship, UMass Amherst, March 2007
	First Place Winner, Henry Jacob Mathematics Competition, UMass Amherst, March 2006
	Second Place Winner, Henry Jacob Mathematics Competition, UMass Amherst, March 2005
WORK AUTHORIZATION	U.S. Citizen