Shuhao Zhang

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EDUCATION

Ph.D. in Computer Science
2019

National University of Singapore, Singapore (NUS)*

Doctoral Dissertation: Scaling Data Stream Processing on Multicore Architectures. Supervisor: Prof. Bingsheng He

*: 2014∼2016 in Nanyang Technological University with the same supervisor

B.E(hons) in Computer Engineering
Aug 2014

Nanyang Technological University (NTU), Singapore (*GPA 4.83/5*)

Honors Thesis: Towards Portable and Efficient Query Processing on Parallel CPU/GPU Architectures. Supervisor: Prof. Bingsheng He

AWARDS

- Research Achievement Award (NUS) — 2018 – 2019
- SIGMOD 2019 Travel Award — 2019
- SAP PhD Research Scholarships — 2014 – 2018
- Research Achievement Award (NUS) — 2017 – 2018
- Dean's list student (NTU) — 2010 – 2013
- Best peer tutor/coach awards (NTU) — 2012 – 2013
- AY11-12 URECA Certificate (NTU) — 2011 – 2012
- Senior Middle 3 Singapore Government Undergraduate Scholarship — 2010 – 2014

CONFERENCE PUBLICATIONS

1. Feng Zhang, Lin Yang, **Shuhao Zhang**, Bingsheng He, Wei Lu, Xiaoyong Du, "FineStream: Fine-Grained Window-Based Stream Processing on CPU-GPU Integrated Architectures" *USENIX Annual Technical Conference (USENIX ATC) 2020 to appear*

2. Feng Zhang, Ningxuan Feng, Yani Liu, Cheng Yang, Jidong Zhai, **Shuhao Zhang**, Bingsheng He, Jiazao Lin, Xiaoyong Du, "PewLSTM: Periodic LSTM with Weather-Aware Gating Mechanism for Parking Behavior Prediction" *International Joint Conference on Artificial Intelligence –Pacific Rim International Conference on Artificial Intelligence (IJCAI) 2020 to appear*

3. **Shuhao Zhang**, Yingjun Wu, Feng Zhang, Bingsheng He, "Towards Concurrent Stateful Stream Processing on Multicore Processors" *IEEE International Conference on Data Engineering (ICDE), 2020*

4. Jieliang Ang, Tianyuan Fu, Johns Paul, **Shuhao Zhang**, Bingsheng He, Teddy Sison David Wenceslao, Sien Yi Tan, "TraV: An Interactive Trajectory Exploration System For Massive Data Sets" *The Fifth IEEE International Conference on Multimedia Big Data (IEEE BIGMM) demo track, 2019*

5. **Shuhao Zhang**, Jiong He, Amelie Chi Zhou, Bingsheng He, "BriskStream: Scaling Data Stream Processing on Shared-Memory Multicore Architectures" *International Conference on Management of Data (SIGMOD), 2019*

6. **Shuhao Zhang**, Bingsheng He, Daniel Dahlmeier, Amelie Chi Zhou, Thomas Heinze, "Revisiting the design of data stream processing systems on multi-core processors" *IEEE International Conference on Data Engineering (ICDE), 2017*

7. **Shuhao Zhang**, Hoang Tam Vo, Daniel Dahlmeier, Bingsheng He, "Multi-Query Optimization for Complex Event Processing in SAP ESP" *IEEE International Conference on Data Engineering (ICDE), 2017*

8. Shanjiang Tang, Bingsheng He, **Shuhao Zhang**, Zhaojie Niu, "Elastic Multi-Resource Fairness: Balancing Fairness and Efficiency in Coupled CPU-GPU Architectures" *ACM/IEEE Supercomputing Conference (SC), 2016*

9. Jiong He, **Shuhao Zhang**, Bingsheng He, "In-Cache Query Co-Processing on Coupled CPU-GPU Architectures", International Conference on Very Large Data Bases (VLDB), 2014

10. **Shuhao Zhang**, Jiong He, Bingsheng He, Mian Lu, "OmniDB: Towards Portable and Efficient Query Processing on Parallel CPU/GPU Architectures" *International Conference on Very Large Data Bases (VLDB) demo track, 2013*

JOURNAL PUBLICATIONS	

1. **Shuhao Zhang**, Feng Zhang, Yingjun Wu, Paul Johns, Bingsheng He, "Hardware-Conscious Stream Processing: A Survey" *ACM SIGMOD Record, 2019*

2. Feng Zhang, Jidong Zhai, Bingsheng He, **Shuhao Zhang**, Wenguang Chen, "Understanding Co-running Behaviors on Integrated CPU/GPU Architectures" *IEEE Transactions on Parallel & Distributed Systems (TPDS), 2017*

3. Zeke Wang, **Shuhao Zhang**, Bingsheng He,Wei Zhang, "Melia: A MapReduce Framework on OpenCL-Based FPGAs" *IEEE Transactions on Parallel & Distributed Systems (TPDS), 2016*

PATENTS

1. **Shuhao Zhang**, Bingsheng He, Daniel Hermann Richard Dahlmeier, "Efficient execution of data stream processing systems on multi-core processors", *US Patent App. 15/348,932*, 2018.

2. **Shuhao Zhang**, Hoang Tam Vo, Daniel Hermann Richard Dahlmeier, Bingsheng He, "Multi-query optimizer for complex event processing", *US Patent App. 9,953,056*, 2018.

WORK EXPERIENCE

Postdoc Researcher Feb 2020 – present
DIMA, Technische Universität Berlin, Germany
I am working in a research team lead by Prof. Volker Markl. My research involves investigating secure stream processing and transactional stream processing in IoT environment.

Research Scientist II (RSE 3) Sep 2019 – Feb 2020
Institute for Infocomm Research A*STAR, Singapore
My research involves investigating high performance secure data processing at edge with Intel SGX.

Research Fellow/Assistant Aug 2018 – Sep 2019
NUS-Grab AI Lab Singapore
My research involves investigating new opportunities to enhance real-time trajectory data management including design of scalable trajectory query processing systems.
A trajectory query processing and visualization system is developed by students under my co-supervision, and a demo paper is published.

Research Associate (Ph.D scholars) Aug 2014 – Aug 2018
Research & Innovation, SAP Singapore
My research involves investigating new opportunities to enhance complex event processing including design of new framework with related techniques and software modules.
Two patents filed with me being first inventor.

Research Assistant (Internship)   Jun 2012 – Aug 2013

    Division of DCT, Data Storage Institute

    Contributed on varies projects of cloud security area.