Shuhao Zhang **shuhao.zhang@comp.nus.edu.sg**

Education

Ph.D. in Computer Science May 2019 (expected)

National University of Singapore, Singapore*

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, Singapore (*GPA 4.83/5*)

Awards

Student Awards — National University of Singapore

- Research Achievement Award 2017

Student Awards — Nanyang Technological University

- Dean's list student 2010 – 2013
- Best peer tutor/coach awards 2012 – 2013
- AY11-12 URECA Certificate 2011 – 2012
- Senior Middle 3 Singapore Government Undergraduate Scholarship 2010 – 2014

Publications

1. **Shuhao Zhang**, Yingjun Wu, Feng Zhang, Bingsheng He, "Scaling Stream Processing with Transactional State Management on Multicores" *Under Review*
2. **Shuhao Zhang**, Jiong He, Amelie Chi Zhou, Bingsheng He, "BriskStream: Scaling Data Stream Processing on Shared-Memory Multicore Architectures" *SIGMOD, 2019*
3. **Shuhao Zhang**, Bingsheng He, Daniel Dahlmeier, Amelie Chi Zhou, Thomas Heinze, "Revisiting the design of data stream processing systems on multi-core processors" *ICDE, 2017*
4. **Shuhao Zhang**, Hoang Tam Vo, Daniel Dahlmeier, Bingsheng He, "Multi-Query Optimization for Complex Event Processing in SAP ESP" *ICDE, 2017*
5. Feng Zhang, Jidong Zhai, Bingsheng He, **Shuhao Zhang**, Wenguang Chen, "Understanding Co-running Behaviors on Integrated CPU/GPU Architectures" *TPDS, 2017*
6. Shanjiang Tang, Bingsheng He, **Shuhao Zhang**, Zhaojie Niu, "Elastic Multi-Resource Fairness: Balancing Fairness and Efficiency in Coupled CPU-GPU Architectures" *SC, 2016*.
7. Zeke Wang, **Shuhao Zhang**, Bingsheng He,Wei Zhang, "Melia: A MapReduce Framework on OpenCL-Based FPGAs" *IEEE TPDS, 2016*.
8. Feng Zhang, Jidong Zhai, Wenguang Chen, Bingsheng He, **Shuhao Zhang**, "To Co-run, or Not to Co-run: A Performance Study on Integrated Architectures" *MASCOTS (short-paper), 2015*.
9. Jiong He, **Shuhao Zhang**, Bingsheng He, "In-Cache Query Co-Processing on Coupled CPU-GPU Architectures", VLDB, 2014.
10. **Shuhao Zhang**, Jiong He, Bingsheng He, Mian Lu, "OmniDB: Towards Portable and Efficient Query Processing on Parallel CPU/GPU Architectures" *VLDB (demo) 2013*.
11. Ren Shuqin, **Shu Hao Zhang**, Yong Zhen Chen, Miguel Rodel Felipe, Ya Jun Ha, Khin Mi Mi Aung, "Empirical Study of Accelerating Data Protection for Multi-tenant Storage" *AISS*, 2013.

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

Research Fellow/Assistant Aug 2018 – present
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.

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.

Research Assistant (Internship) Jun 2012 – Aug 2013
Division of DCT, Data Storage Institute
Contributed on varies projects of cloud security area.

Shuhao Zhang
National University of Singapore

March 20, 2019

Dear Faculty Search Committee,

I am applying for the position of tenure-track assistant professor in design and implementation of large-scale systems, with a focus on efficient data stream processing systems on modern hardware architectures.

I am a system researcher with a computer science background in database design and software engineering. My research strives to build next generation of data stream processing systems and algorithms towards more efficient and scalable by exploiting the more and more widely accessible multicore architectures. For example, the system[1] that I have built so far, for the first time, scales stream computation towards hundred of cores under the Non-Uniform-Memory-Access effect. This brings the potential of accelerating existing stream processing application beyond what can be achieved today, and brings many new opportunities of supporting emerging data-intensive applications, such as online big-data machine learning.

I am expected to finish this year my PhD study of computer science at National University of Singapore (NUS), supervised by Prof. Bingsheng He. During my five years' PhD study, I have published 3 papers (one more is currently under-review) as first author in top-tier conferences including SIGMOD and ICDE. I have also co-authored a number of papers in related fields with researchers from different backgrounds. My performance over the past year has shown that I can conduct a research topic to publish high-quality papers, and I can successfully collaborate with other researchers as well.

Since Aug 2018, I'm becoming a research assistant in the Grab-NUS AI Lab, and I'm leading the platform research team under Prof. Bingsheng He. I have since then mentored two undergraduate students from NUS. We have developed a highly scalable interactive trajectory query and visualization system. Our paper describing the aforementioned system is in-plan to submit this year. At the same time, I have participated in supervising one of my juniors with Prof.He, and the student is about to pass his qualifying-examination at NUS this year. Those achievements have shown that I can also teach and mentoring students very well.

To fully achieve my professional goals at this time, I would like to move to a well-established department with greater potential for cross-disciplinary collaboration.

I look forward to hearing from you. Please feel free to contact me if you need any additional information.

Sincerely,

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Tel: 86166722
https://vcard.acm.org/ shuhaoz/

[1] https://github.com/ShuhaoZhangTony/briskstream