

Shuhao Zhang  
National University of Singapore

November 8, 2019

Dear Sir/Madam,

I am applying for the position of Research Associate (Postdoc) with reference number of IV-773/19. I focus on research of efficient data stream processing systems and algorithms on modern hardware architectures.

I am a system researcher with a computer science background in big data processing system design. 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 powerful and specialized hardware architectures. For example, the system<sup>1</sup> 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 have just been conferred my PhD degree 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. I have been PC member of CIKM 2019 and ICDCS 2020 and being invited as reviewers for ICPP 2018, TCC, TKDE. 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 was 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. Those achievements have shown that I can also teach and mentoring students very well.

Since Sep 2019, I'm becoming a research scientist in the I2R A-star, and I'm currently leading the research on high performance confidential data processing using Intel SGX. To fully achieve my professional goals at this time, I would like to move to a well-established research group like the Database Systems and Information Management (DIMA) Group at TU Berlin with greater potential for cross-disciplinary collaboration.

Following referees will email the recommendation letters directly if asked:

- Dr. **Bingsheng He** - National University of Singapore  
**Email:** hebs@comp.nus.edu.sg
- Dr. **Jidong Zhai** - Tsinghua University of China  
**Email:** zhajidong@tsinghua.edu.cn
- Dr. **Daniel Dahlmeier** - SAP Germany  
**Email:** d.dahlmeier@sap.com

---

<sup>1</sup><https://github.com/ShuhaoZhangTony/briskstream>

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

Sincerely,

Shuhao Zhang  
E-mail:[tonyzhang19900609@gmail.com](mailto:tonyzhang19900609@gmail.com)  
Tel: 65-86166722  
<https://vcards.acm.org/shuhaoz/>