Hailiang Zhao

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BIOGRAPHY

Currently I am a first-year Ph.D. student of College of Computer Science and Technology, Zhejiang University (http://www.zju.edu.cn/). Before my Ph.D. career, I was an undergraduate student from Wuhan University of Technology (http://www.whut.edu.cn/) and received my B.Eng. degree in Computer Science and Technology on June, 2019. In September 2019, I was admitted to study for a Ph.D. degree in Zhejiang University under the supervision of Prof. Shuiguang Deng (https://person.zju.edu.cn/shuiguang) without entrance examination.

EDUCATION

Bachelor of Engineering, Computer Science and Technology
Wuhan University of Technology, Wuhan, China — June 2019
Thesis - Research on Hand-written Digital Recognition in Edge Computing Environment

RESEARCH INTERESTS

I am interested in **Edge Computing**, **Cloud Computing** and **Mobile Computing**. Currently I am focusing on:

- **Computation Offloading**. Computation offloading is the transfer of resource intensive computational tasks to an external platform, such as a cluster, grid, or a cloud. Offloading may be necessary due to hardware limitations of a devices, such as limited computational power, storage, and energy. The resource intensive tasks may be for searching, virus scanning, image processing, artificial intelligence, computational decision making, etc. In the area of edge computing, it studies the load balancing of various computation and communication resources in the manner of edge server selection and frequency spectrum allocation.
- **Edge Intelligence**. Edge Intelligence is not the simple combination of Edge Computing and Artificial Intelligence. Actually, the subject of Edge Intelligence is tremendous and enormously sophisticated, covering many concepts and technologies, which are interwoven together in a complicated manner. Currently, the formal and internationally acknowledged definition of Edge Intelligence is non-existent. Innovatively, we divide Edge Intelligence into *AI for edge* and *AI on edge*. The former focuses on providing a more optimal solution to the key concerns in Edge Computing with the help of popular and resultful AI technologies while the latter studies how to carry out the entire process of AI models, i.e., model training and inference, on edge.

SELECTED PUBLICATIONS

- **Hailiang Zhao**, Shuiguang Deng*, Zijie Liu, Jianwei Yin, and Schahram Dustdar, *Distributed Redundant Placement for Microservice-based Applications at the Edge.* In: **IEEE Transactions on Services Computing (TSC)**, doi: https://doi.org/10.1145/3397160. (Core A*, CCF B)
- Shuiguang Deng, Guanjie Chen, **Hailiang Zhao**, Honghao Gao, and Jianwei Yin, *Incentive-driven Computation Offloading in Blockchain-enabled E-commerce.* In: **ACM Transactions on Internet Technology (TOIT)**, doi: https://doi.org/10.1145/3397160. (Core B, CCF B)

- Shuiguang Deng, **Hailiang Zhao**, Weijia Fang*, Jianwei Yin, Schahram Dustdar and Albert Y. Zomaya, *Edge Intelligence: The Confluence of Edge Computing and Artificial Intelligence.* In: **IEEE Internet of Things Journal**, doi: 10.1109/JIOT.2020.2984887. (JCR Q1)
- Yishan Chen, Shuiguang Deng*, **Hailiang Zhao**, Qiang He, Yin Li and Honghao Gao, *Data-intensive Application Depolyment at Edge: A Deep Reinforcement Learning Approach.* In: **Proceedings of the 17th IEEE International Conference on Web Services (ICWS'19)**, Milan, Italy, 2019. (Core A, CCF B)
- **Hailiang Zhao**, Shuiguang Deng*, Cheng Zhang, Wei Du, Qiang He and Jianwei Yin, *A Mobility-aware Cross-edge Computation Offloading Framework for Partitionable Applications.* In: **Proceedings of the 17th IEEE International Conference on Web Services (ICWS'19)**, Milan, Italy, 2019. [Best Student Paper] (Core A, CCF B)
- Cheng Zhang, **Hailiang Zhao** and Shuiguang Deng, *A Density-based Offloading Strategy for IoT Devices in Edge Computing Systems.* In: **IEEE Access**, doi: 10.1109/ACCESS.2018.2882452.
- **Hailiang Zhao**, Wei Du*, Wei Liu, Tao Lei and Qiwang Lei, *QoE Aware and Cell Capacity Enhanced Computation Offloading for Multi-Server Mobile Edge Computing Systems with Energy Harvesting Devices.* In: **Proceedings of the 15th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC'18)**, Guangzhou, China, 2018. (Core B, CCF C)

HONORS

Doctoral Freshman Scholarship of Zhejiang University, Sep 2019
Best Student Paper Award of the 2019 IEEE International Conference on Web Service, July 2019
Outstanding Graduate of Wuhan University of Technology, June 2019
The Excellence Award of Wuhan University of Technology, Oct 2018