

JIAWEI WANG

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ABOUT ME

I am currently a system researcher at Huawei, specializing in the research and development of highly concurrent, low-latency, and non-blocking system components for HarmonyOS.

I obtained my doctorate degree from Technische Universität Dresden (TU Dresden), where I was advised by Dr. Ming Fu and Prof. Hermann Härtig. My doctoral research focused on *system scalability*, *parallel processing*, *multi-core concurrency*, and *concurrent data structures*, combined with *formal verification* techniques.

Prior to joining TU Dresden, I worked as a research assistant at Microsoft Research Asia (MSR Asia, MSRA), collaborating with Fan Yang and Mike Chieh-Jan Liang. I earned my Master's degree from University of Science and Technology of China (USTC), under the supervision of Prof. Cheng Li and Prof. Xinyu Feng, focusing on *distributed systems*. My Bachelor's degree was also obtained from USTC, where I was fortunate to work with Dr. Ming Fu and Prof. Xinyu Feng on *formal verification*.

EDUCATION



Technische Universität Dresden

August 2021 - November 2024

Doctor of Engineering in Computer Science

Advisor: Doctor *Ming Fu* and Professor *Hermann Härtig*

Thesis: High Performance and Dependable Asynchronous Communication on Multi-Core Systems



University of Science and Technology of China

September 2017 - July 2020

Master of Engineering in Computer Software and Theory

Advisor: Professor *Cheng Li* and Professor *Xinyu Feng*

Thesis: A Language for Fine-Grained Consistency in Distributed Systems: Design and Implementation



University of Science and Technology of China

September 2013 - June 2017

Bachelor of Engineering in Computer Science and Technology

Advisor: Doctor *Ming Fu* and Professor *Xinyu Feng*

Thesis: Formalizing SPARCv8 Instruction Set Architecture in Coq

PUBLICATIONS



Enabling Efficient Mobile Tracing with BTrace (accepted, to appear)

Jiawei Wang, Nian Liu, Arnau Casadevall-Saiz, Yutao Liu, Diogo Behrens, Ming Fu, Ning Jia, Hermann Härtig, and Haibo Chen

The 30th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '25).



Brief Announcement: Work Stealing through Partial Asynchronous Delegation (slides)

Jiawei Wang, Yutao Liu, Ming Fu, Hermann Härtig and Haibo Chen

The 36th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA '24).



BWoS: Formally Verified Block-based Work Stealing for Parallel Processing (slides)

Jiawei Wang, Bohdan Trach, Ming Fu, Diogo Behrens, Jonathan Schwender, Yutao Liu, Jitang Lei, Viktor Vafeiadis, Hermann Härtig, and Haibo Chen

The 17th USENIX Symposium on Operating Systems Design and Implementation (OSDI '23).



BBQ: A Block-based Bounded Queue for Exchanging Data and Profiling (slides and project page)

Jiawei Wang, Diogo Behrens, Ming Fu, Lilith Oberhauser, Jonas Oberhauser, Jitang Lei, Geng Chen, Hermann Härtig, and Haibo Chen

2022 USENIX Annual Technical Conference (USENIX ATC '22).



AutoGR: Automated Geo-Replication with Fast System Performance and Preserved Application Semantics (slides and project page)

Jiawei Wang, Cheng Li, Kai Ma, Jingze Huo, Feng Yan, Xinyu Feng, and Yinlong Xu

The 47th International Conference on Very Large Data Bases (VLDB '21).



Formalizing SPARCV8 Instruction Set Architecture in Coq

Jiawei Wang, Ming Fu, Lei Qiao, and Xinyu Feng

Science of Computer Programming (SCP), February 2020.

(Journal version of the SETTA'17 paper)



Formalizing SPARCV8 Instruction Set Architecture in Coq (slides)

Jiawei Wang, Ming Fu, Lei Qiao, and Xinyu Feng

The 3rd International Symposium on Dependable Software Engineering: Theories, Tools, and Applications (SETTA '17).

Best Paper Award Honorable Mention

EXPERIENCE



System Researcher, Fields Lab, Huawei Technologies Co., Ltd.

January 2025 - Present

- Research and develop system components for HarmonyOS.



Industrial Ph.D. Student S4C Group, Huawei Dresden Research Center

September 2021 - December 2024

- Design and implement queues, locks, tracing frameworks for Harmony OS



Research assistant in System Research Group, Microsoft Research Asia

February 2021 - August 2021

Advisors: *Fan Yang* and *Mike Chieh-Jan Liang*

- AI for compiler optimization, AI for cache replacement policy



Research assistant in OS Kernel Lab, Huawei Hangzhou Research Institute

July 2020 - November 2020

- Verify memory replacement algorithms of an in-house OS (e.g., RCU, RLU, EBR)
- Implement and verify lock-free data structures under weak memory models



Teaching assistant for *Compiler Principles*, USTC (2019, Fall Semester)
Teaching assistant for *Compiler Principles*, USTC (2018, Fall Semester)
Teaching assistant for *Computer Programming II*, USTC (2018, Summer Semester)
Teaching assistant for *Computer Programming II*, USTC (2018, Spring Semester)

Research assistant in R&D department of cloud storage, Alibaba Cloud

July 2016 - October 2016

- Design and implement the front-end server for Function Compute Service (Serverless)

HONORS & AWARDS

TopMinds, Huawei	2024
Silver Medal, Huawei Central Software Institute Innovation Contest	2023
Outstanding Innovation Breakthrough Award, Huawei Dresden Research Center	2023
Future Stars Award, Huawei Dresden Research Center	2022
Outstanding Ph.D. Student, Huawei Dresden Research Center	2022
Bronze Medal, Huawei Central Software Institute Innovation Contest	2022
Timely Incentive Award, Huawei Dresden Research Center	2022
Second Prize Fellowship of University of Science and Technology of China	2018
First Prize Fellowship of University of Science and Technology of China	2017
Best paper award honorable mention for the paper presented at SETTA'17	2017
Outstanding Bachelor Thesis (top 5%), USTC	2017
New student fellowship of University of Science and Technology of China	2013
First prize of Chinese Physics Olympiad, Hebei, China	2012