

JIAWEI WANG

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EDUCATION



Technische Universität Dresden

August 2021 - Present

Ph.D. Student in the field of Computer Science

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



University of Science and Technology of China

September 2017 - July 2020

Master of Engineering in Computer Science and Technology

Advisor: Research 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

RESEARCH INTERESTS

I am interested in *concurrency*. My research focuses on how to make the program run correctly and fast under a concurrent environment. Specifically, I am interested in *system scalability*, *parallel processing systems*, *multi-core concurrency*, and *concurrent data structures* combined with *formal verification* techniques.

PUBLICATIONS



Brief Announcement: Work Stealing through Partial Asynchronous Delegation

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)

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. ©Elsevier.
 (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). ©Springer.
Best Paper Award Honorable Mention

EXPERIENCE



Huawei Sanyapo Project
August 2023 - December 2023
 • Design and implement a tracing system of a commercial OS



Huawei OS Kernel Lab
April 2023 - May 2023
 • Design and implement a multi-priority readers-writer lock for a commercial OS



Huawei NICE Project
January 2023 - February 2023
 • Joined the NICE project and participated in the Datacom HPF2.0 and Wireless DP projects
 • Designed and implemented a demo of a packet forwarding framework
 • Developed a high-performance multi-threaded memory pool for Wireless L2 Parallelization
 • Apply BBQ into Wireless L2 Parallelization



Huawei Sanyapo Project
May 2022 - September 2022
 • Develop a high-performance lock-free memory allocation library
 • Develop a crash-tolerant queue for cross-process communication with virtualization
 • Apply BBQ into the logging component of a commercial OS
 • Apply BBQ into 5G core network UDG of the cloud product line



Industrial Ph.D. Student in Safe and Scalable System Software Concurrency Group,
 Huawei Dresden Research Center
September 2021 - Present



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)

TECHNICAL STRENGTHS

Logic & Verification



Coq



Z3



Prolog



TLA+

Programming Language



C



C++



Python



Java

Functional Programming



Haskell



Scala



Ocaml



Scheme

Other Skills



Keras



LaTeX

HONORS & AWARDS

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