Zhiyang Chen

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Education

B.E. in Computer Science and Technology at **Beijing Technology and Business University**, Beijing, China Sep, 2019 – Jun, 2023
Selected courses: The Design and Analysis of Algorithms, Linux Operating System, C Program Language, Object-Oriented Programming (C++), Computer Networks

M.S. in Computing Science at **Utrecht University**, Utrecht, the Netherlands Sep, 2025 – Present
Selected courses: Concepts of Programming Language Design, Geometry Algorithms, Probabilistic Reasoning, Algorithms for Decision Support

Work Experience

BTBU, Beijing, China Aug, 2024 – Aug, 2025
Project Leader, Research Assistant

- Developed GDB extensions for debugging and profiling asynchronous Rust code via runtime-agnostic static analysis and instrumentation.
- Conducted extensive research on both async Rust and OS debugging by summarizing and replicating related papers, identified and documented limitations of existing works.
- Developed a comprehensive project plan covering both async Rust and OS debugging, coordinated lab members working on different subprojects.
- Adapted the "code-debug" OS debugging tool to a Linux-compatible, modular Rust OS ("Starry"), enhanced and modularized the tool to facilitate integration with other debuggers.
- Built a quantitative student capability analysis tool that provides visualized performance metrics on different course objectives to help adjust teaching plans.

Quan Cheng Laboratory, Jinan, China Jan, 2024 – Feb, 2024
Secure Operating System Kernel Project, Flexible Researcher

- Adapted the "code-debug" OS debugging tool for the operating system being developed by the Secure Operating System Kernel Project (ArceOS).
- Prepared support documents and videos based on colleagues' feedback after using the OS debugging tool and simplified the installation and configuration process.
- Promoted the use of the OS debugging tool to students (about 20 in total) who are interested in learning OS at two universities (Beijing Technology and Business University and Henan University of Science and Technology) via video conference.

Related Projects

Source-level OS Debugging Tools with Rust Language Support, VSCode Extension (role: project leader) chenzhiy2001/code-debug

- Supported source-level tracing and debugging across kernel state and user state based on QEMU and GDB.
- Supported performance analysis and monitoring across kernel and user states based on eBPF.
- Supported the combination of breakpoint debugging and performance monitoring based on VSCode to build remote development environments.

Skills

- Programming Languages: multilingual (not limited to any specific language), especially experienced in TypeScript/JavaScript Python Rust C C++ Java, comfortable with Wolfram Haskell Dart R MATLAB (in random order).
- IDE Tooling: **4 years of experience**, familiar with VSCode plugin development.
- Tools: editor-agnostic, have experience with team tools like YouTrack, Jira, GitHub, BitBucket, Slack, JetBrains Space and more.

Misc

- Languages: English - fluent (IELTS 7.5), Chinese - native speaker

Publications & Patents

[1] Z. Chen, J. Wu, Y. Yang, Y. Zhang, and H. Wang, "Debugging Kernel and User Space Synchronously Based on GDB," in *2025 6th International Conference on Computer Engineering and Application (ICCEA)*, 2025, pp. 1–5. doi: 10.1109/ICCEA65460.2025.11103326.

[2] Z. Chen, Y. Yu, Z. Li, and J. Wu, "An Online Debugging Tool for Rust-based Operating Systems," in *Rust Education Workshop*, 2022.

[3] J. Wu, L. Zhang, Z. Chen, and Y. Xiang, "Method and Apparatus for Debugging Operating System Source Code Across Kernel State and User State. C.N. Patent 2023115942620, Mar. 2024"

[4] X. Zhao, Z. Chen, L. Zhang, T. Yu, and P. Chunyi, "A Portrait Ranging Method Based on K210 Internet of Things System. C.N. Patent 2023115942620, May. 2021"