

Tiffany Pek

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WORK AUTHORIZATION

Based in Singapore, open to relocation worldwide
Visa sponsorship required for EU/UK/Switzerland/US

PROJECT EXPERIENCE

Research Intern **Jul 2025 – Aug 2025**

ETH Zurich — Switzerland

- Formalizing Polonius borrow checker in [a-mir-formality](#), as part of the [Rust Project Goal](#)

Rust Compiler & Tooling Contributor **May 2024 – Now**

Miri: undefined behaviour checker

- Engineered the emulation of Linux system calls (socketpair, eventfd, epoll, fcntl) in Miri by analyzing and implementing their low-level semantics
- Added detection for Undefined Behaviour related to variadic functions in [#4122](#) and [#4181](#)

Rust Compiler

- Implemented a long-requested feature [#140399](#) in the Rust compiler to mark impls of stable types and stable traits as unstable, including documentation, diagnostics, and related const generics refactoring

Tokio: async runtime

- Enabled 1000+ tests in [Tokio](#)'s CI to run under Miri ([#6885](#), [#7060](#)), expanding undefined behaviour coverage

a-mir-formality: model of Rust type and trait system

- Extended a-mir-formality to support const trait, with the formalism adopted in the const trait RFC and language design discussion
- Added support for MIR function body in [#195](#)

Software Verification Research **Feb 2024 – May 2024**

Programming Languages & Software Engineering — National University of Singapore

- Explored the feasibility of applying data race detection method on use-after-free bugs
- Implemented a feature for converting program counter (PC) to line number to improve diagnostics and debugging experience

Rust Engineer **Aug 2023 – May 2024**

National University of Singapore

- Implemented a playback cache system, enhancing overall user experience and reducing rendering load
- Removed the one-frame limit of the previous stream prefetching algorithm

EDUCATION

Bachelor of Computing in Computer Science with Honours **2022 – 2026 (Expected)**

National University of Singapore

SKILLS AND INTERESTS

Programming Languages: Rust, Python, C++, Java (proficient) | Go, JavaScript, C (familiar)

Systems: Linux, Compiler internals, Runtime systems

Tools: Coq, Docker, Git

Parallel Computing: OpenMP, CUDA, MPI

Languages: Fluent in English and Chinese, intermediate proficiency in Malay, currently learning German