Tiffany Pek

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Work Authorization

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

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 `impl`s 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