Timothy Choi

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HK: Citizen | UK: BNO | AU: 500 / 485

Education

The University of Adelaide	**Adelaide, Australia**
Bachelor of Mathematical and Computer Sciences *GPA: 6.33/7*	*2022 Feb – Present*
Technical University of Munich	**Munich, Germany**
Informatics (Exchange)	*2024 Apr – 2025 Apr*

Experience

Susquehanna International Group   **Sydney, Australia**
Incoming Software Development Intern   *C++, Connectivity team*   *2025 Nov – 2026 Feb*

Dassault Systèmes   **Munich, Germany**
Software Engineer (part-time)   *C++, mkmk, Jira, BitBucket, NG Jenkins, Python, Rust*   *2024 May – 2025 Mar*
- Refactor legacy C++ codebase using the pImpl paradigm, enhancing backward compatibility and reducing code size by over 50%
- Enhance internal debugging tools by designing a more intuitive graphical user interface in C++, improving usability and efficiency
- Parse specification files with Python to generate over 2000 comprehensive testcases to ensure there are no regressions
- Optimize development workflows with Rust, achieving up to a 90% reduction in task times such as compilations

Altacomm Technologies   **Adelaide, Australia**
Software Engineering Intern   *Rust, Actix, Astro, GitHub Actions*   *2024 Jan – 2024 Mar*
- Improved responsiveness and SEO of company landing page, consistently staying on the front page of Google search results
- Empower student communities and streamlining the logistical processes by building a full-stack contact and media release page

Global Technology Integrator   **Hong Kong**
System Engineer   *Batch, Windows AD, Project Management*   *2021 Aug – 2021 Nov*
- Leading a team of 4+ people, spearheaded the automation and parallelization of our tasks such as registry modification
- Helped resolve our staff shortage by reducing the manpower and time required by ~200%, and in so doing beating the deadline
- Mentored new staff, helping a non-technical audience understand the the basics of Windows AD and Batch scripting

Open Source Contributions

LLVM   *C++*   github.com/llvm/llvm-project
- [libc++] Improve `std::filesystem::path::lexically_relative` runtime by up to 40% by avoiding string reallocation (#152964)
- [clang] Add diagnostic when scoped enumeration requires an explicit conversion for binary operations (#152698)
- [clang] Remove 14+ years old redundant check for scoped enums in shift operators (#152865)

Rust   *Rust*   github.com/rust-lang/rust
- [std][BTree] Fix behavior of `::append` to match documentation, `::insert`, and `::extend` (#145614) (#145628) (in progress)

Projects

Block Model Compression Algorithm   *C++, Algorithm Design, Linux*   tinnamchoi.github.io/projects/bmca
- Developed an octree-based algorithm in C++ to efficiently compress 3D data in $O(N \log_8 N)$, optimizing storage and processing
- Employed agile methodologies for a group of 7 and enforced good Git practices such as using conventional commits

Binary Search on Color   *Algorithm Design, JavaScript*   tinnamchoi.github.io/projects/bsoc
- Devised an algorithm that allows people to search the modern color space of over 16 million colors in just 24 clicks
- Inspired by the lack of precision in existing tools, providing a better imagination to reality interface

Negative Base Converter   *Math, Number Theory, JavaScript*   tinnamchoi.github.io/projects/nbc
- Created a converter for negative base numeral systems by researching the mathematical principles behind it
- Motivated by the lack of existing tools, providing beginners with a better understanding of negative bases

Volunteering

Adelaide Competitive Programming Club   **Australia and New Zealand**
Problemsetter   *C++, Rust*   *2025 Feb – Present*
- Creating and testing competitive programming problems for AllUni (`alluni.io`) and AUCPL (`aucpl.com`)
- Competitive programming contests created in collaboration with 20 student clubs across 7 cities in Australia and New Zealand
- Prize pools of $5,000 and $2,400 sponsored by Susquehanna (SIG), Jane Street, Citadel, and IMC

Skills & Achievements

Skills & Technologies

Daily drivers: C++, Rust, Linux, Git, Just, Typst, GitHub   **Familiar:** Python, JavaScript, Atlassian suite, Bash, LaTeX, HTML, CSS

Human languages: English (native), Cantonese (native), Mandarin (C1), German (A2)

Prizes & Achievements

Subject prize: Information and Communication Technology 2021	*Achiever of the best results amongst peers*
University of Adelaide Scholarship: 30% Global Citizens Scholarship	*Best possible scholarship for international students*