

# Timothy Choi

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**Working rights: no sponsorship required for Hong Kong, the United Kingdom, and Australia**

## Education

### The University of Adelaide

Bachelor of Mathematical and Computer Sciences GPA: 6.33/7

Adelaide, Australia

2022 Feb – Present

### Technical University of Munich

Informatics (Exchange)

Munich, Germany

2024 Apr – 2025 Apr

## Experience

### Susquehanna International Group

Incoming Software Development Intern

C++, Connectivity team

Sydney, Australia

2025 Nov – 2026 Feb

### Rust

Individual Contributor

Rust, Standard Library

Remote

2025 Aug – Present

- [std][BTree] Fix behavior of `::append` to match documentation, `::insert`, and `::extend` (#145614) (#145628) (waiting on FCP)

### The LLVM Project

Individual Contributor

C++, Compilers, Semantic Analysis

Remote

2025 Jul – Present

- [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)

### Dassault Systèmes

Software Engineer (part-time)

C++, Jira, BitBucket, Jenkins, Python, Rust

Munich, Germany

2024 May – 2025 Mar

- Refactor legacy C++ codebase using the `plmpl` 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

Software Engineering Intern

Rust, Actix, Astro, GitHub Actions

Adelaide, Australia

2024 Jan – 2024 Mar

- Improved responsiveness and SEO of company landing page, consistently staying on the front page of Google search results

### Global Technology Integrator

System Engineer

Batch, Windows AD, Project Management

Hong Kong

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

## 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

Problemsetter

C++, Rust

Australia and New Zealand

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, etc.

**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