

Aloysius Goo

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WORK EXPERIENCE

Software Intern - A*STAR

Feb 2024 - Apr 2024

- Researched projects involving Vision Place Recognition (VPR) and Object Segmentation
- Implemented different VPR models in **C++** and **ONNX**
- Wrote C++ library to run **Key Point Extractors** and **Matcher Models**
- Wrote tooling to evaluate and fine tune **Segmentation Models**

Research Intern - DSTA

Sep 2021 - Dec 2021

- Worked on an AI research project to improve SCDF's HazMat Transport Vehicle Tracking System
- Implemented clustering algorithms to detect anomalous behaviour from vehicles
- Presented at NUS High's Research Congress

PROJECTS

Source LSP (<https://github.com/source-academy/source-lsp>)

- **Language Server** for Source, a subset of JavaScript, used to teach NUS students programming
- Robust implementation of common language server features
- Integrated into a **VSCode Plugin** for students of NUS CS1101S to use

KOTLC (<https://github.com/muglwara26/KOTLC-Game>)

- A free-to-play, offline, puzzle game about Lambda Calculus developed in **Godot** with **GDScript**
- Custom Lambda Calculus **Domain Specific Language** for encoding levels
- **Tree-walking interpreter** to evaluate player solutions.
- Dynamically analyses player's solutions to determine correctness

Fixen LLVM Static Analysis (<https://github.com/plilab/fixen-demos>)

- **Fixen** is a new research language written in **Haskell** based on fixed point oriented programming
- Developing various **Static Analysis** for LLVM with Fixen, including Interval Analysis by **Abstract Interpretation** and Data-Flow Analysis with **IFDS/IDE**
- Paper is being reviewed for POPL 2027

EDUCATION

National University of Singapore

Aug 2024 - May 2028

GPA: 4.83/5.0

- Bachelors of Computing, Honours in **Computer Science** and Minor in **Mathematics**
- NUS Greyhats member, playing CTFs and organiser of GreyCTF
- Teaching Assistant for [Programming Methodology I](#), [Programming Methodology II](#), and [Operating Systems](#)

NUS High School of Math and Science

Jan 2018 - Dec 2023

- Majors in **Computer Science**, **Math** and **Chemistry**
- Robotics Club **Vice President** in 2021 & 2022
- Computer Science Interest Group Member and Trainer

TECHNICAL SKILLS

- **Languages:** Python, TypeScript, Java, Kotlin, C, C++, OCaml, Haskell
- **Skills:** Linux, Networking, Godot, Git, Prog Lang Impl, Data Science, OS, Parallel Programming (OpenMP, CUDA, OpenMPI), ONNX, Full Stack, Docker, SQL

AWARDS

- Insomni'hack 2026 **1st Runner Up**
- Cyberthon 2023 JC **Champion**
- CDDC 2022 & 2023 JC **Champion**
- Splash Awards 2022 JC **Champion**