

SUYASH KHANNA

☎ 0449689748 ✉ suyashkhanna345@gmail.com suyashkhanna.com

Experience

BAE Systems

February 2024 – Present

Software Engineer

Adelaide, South Australia

- Refactored internal automation tools by converting BASH scripts to Python and introducing multi-threading, reducing overall execution time by over **50–60%**.
- Investigated and profiled C++ performance bottlenecks, identifying excessive CPU usage and inefficient memory access patterns, leading to measurable reductions in system load.
- Built and documented internal REST endpoints using **FastAPI** to expose automation workflows and improve integration with downstream services.
- Researched and compared backend frameworks including **Python, Java, and FastAPI** to support architectural decisions for a new product development initiative.

International Research Laboratory Crossing (IRL CROSSING)

March 2023 – July 2023

AI Researcher Intern

Adelaide, South Australia

- Enhanced a policy-gradient reward function design, improving learning efficiency and cooperative task performance by up to **25%** in controlled simulation environments.
- Collaborated with PhD researchers in psychology and robotics to analyse learning dynamics and emergent behaviors in human–robot, multi-agent systems.

Welkin Web Solutions

April 2022 – July 2022

Web Developer Intern

Adelaide, South Australia

- Assisted in the development of responsive front-end interfaces using HTML5, CSS3, JavaScript, and Vue.js for both web and mobile platforms.
- Tested, debugged, and optimized front-end performance across different browsers and screen sizes .
- Designing database schema to identify potential efficiency flaws and factored in scalability.

Education

University Of New South Wales

February 2026 – Present

Bachelor of Computer Science (Honours)

Sydney, New South Wales

University Of Adelaide

March. 2021 – December 2023

Bachelor of Computer Science

Adelaide, South Australia

Projects

Build Your Own Lisp (Interpreter) | C, Lisp, Interpreters

February 2026

- Built a small **Lisp** interpreter in **C**, implementing S-expression parsing, an **eval/apply** execution model, and a REPL for interactive development.
- Implemented language features such as lexical scoping with environments, user-defined functions (**lambda**), and key special forms such as **if** and **define**.
- Added runtime support with error handling, type checking, and a standard library of built-in functions for arithmetic and list processing.

Space Invaders | C++, Raylib

August 2025

- Developed a fully functional Pong game in **C++** using the **Raylib** graphics library, implementing real-time rendering and collision detection.
- Programmed game physics including ball dynamics, paddle movement, wall collisions, and score tracking.
- Improved gameplay experience by adding keyboard controls, increasing difficulty scaling, and optimizing frame-rate performance.

Distributed Aggregation System (Lamport Clocks) | Java, Sockets, HTTP

December 2023

- Built a distributed client–server system with an **Aggregation Server**, multiple **Content Servers**, and a **GETClient**, implementing HTTP-style GET/PUT request handling over TCP sockets.
- Implemented **Lamport clocks** across services, propagating logical timestamps through requests/responses and validating correctness via before/after time checks in a dedicated **test harness (testing.java)**.
- Engineered a robust protocol behaviour with **error-code testing** (204 for empty-body PUT, 400 for invalid methods), full request/response logging for debugging, and **multi-client/multi-content-server** interaction tests to verify correct data aggregation by unique IDs.

Technical Skills

Languages: C++ 20 (fluent), Python 3.14(proficient), C 99(proficient), Java(Basic)

Developer Tools: VS Studio, VS Code, QT Creator, GDB

Technologies/Frameworks: Git, Linux, FastAPI