Yiyuan Li

Singapore, River Vally | yy@eyuan.me | 895 234 47 | eyuan.me | linkedin.com/in/yyuanl
github.com/yuann3

Summary

Im a highly motivated and adaptable undergraduate at the University Of Newcastle with a passion for creating efficient and scalable solutions. Experienced in project-based learning, with a strong emphasis on problem-solving, collaboration, and independent learning. Seeking opportunities to leverage technical expertise and innovative thinking in dynamic and challenging environments.

Education

The University of Newcastle, Bachelor in Information Technology — Jan 2024 – Sep 2025

- **Highlights:** Achieved high distinction in Object-Oriented Programming, Distinction in Data Structures and Algorithms, Distinction in Advanced Database

Singapore University of Technology and Design (SUTD), École 42 Program, Bachelor's Degree Equivalent in Computer Science (French Diploma), 2 years long Project-Based Curriculum — Feb 2024 – Oct 2024

PSB Academy, Singapore, Diploma in InfoComm Technology — Jan 2023 – Nov 2023

Experience

Peer Assisted Study Sessions (PASS) Leader, The University of Newcastle – Singapore — Feb 2024 – Present

- Provided academic assistance and peer mentoring for modules including Data Structures, Object-Oriented Programming, and Web Technologies
- Conducted regular study sessions, helping peers and juniors understand complex topics through collaborative learning and problem-solving
- Delivered mini-lectures and guided discussions to clarify concepts and enhance academic performance
- Designed and shared supplementary materials, such as practice problems and code snippets, to reinforce learning objectives

Student Council Member, The University of Newcastle, Newcastle Australia Institute of Higher Education (NAIHE) – Singapore — Sep 2024 – Present

- Organized university-wide events, fostering student engagement and promoting campus culture
- Worked collaboratively with a diverse team of council members to plan and execute activities, ensuring smooth operations and high participation rates
- Enhanced teamwork and leadership skills by managing task delegation, timelines, and conflict resolution
- Represented student interests in meetings with university administration, contributing to campus improvements and policy changes
- Developed event management strategies, focusing on logistics, budgeting, and marketing to maximize outreach and impact

Cadet, Pisciner, Singapore University of Technology and Design (SUTD), École 42 Programme – Singapore — Sep 2024 – March 2024

- Successfully completed SUTD's intensive and competitive 42 Piscine Programme
- Achieving proficiency in C, Linux, and Shell Scripting. Demonstrated a strong understanding of C syntax, memory management, and problem-solving through a series of progressively complex programming challenges, including 12 individual and 4 group projects, all completed within 26 days
- Collaborated with peers in a diverse team of 150 classmates, enhancing teamwork and communication skills
- Gained hands-on experience with Git version control systems, promoting effective coding practices and collaboration

Projects

Hiraku (AI-Powered Smart Learning Companion) The University of Newcastle

- Managed and led full-stack development of the project as PM, overseeing architecture, team coordination, and milestone delivery
- Used Retrieval-Augmented Generation (RAG) architecture to develop an intelligent learning assistant that helps students organize and interpret course materials, leveraging Python and modern LLM technologies
- Implemented a comprehensive document processing system supporting multiple file types (PDF, TXT, MD, JSON, CSV), including both digital and handwritten content, by integrating LlamaIndex for analysis and ChromaDB for efficient vector storage
- Created an interactive knowledge graph to visualize concept interrelationships, leveraging cosine similarity and HNSW for vector similarity search optimization
- Built a context-aware chat interface with three response modes (accurate, interactive, flexible) using Ollama to deploy local LLMs, ensuring ethically conscious, context-sensitive responses based on course materials
- Engineered a secure user authentication system employing JWT and bcrypt password hashing, with SQLite for data persistence
- Delivered a responsive, streamlined user interface and backend services
- Tool Used: JavaScript/TypeScript (React 19, Next.js), Tailwind CSS, Python (Flask REST API, JWT), Database (SQLite)

Rust HTTP Server Personal Project

- Designed and implemented a simple HTTP server in Rust that adheres to the HTTP/1.1 protocol. It supports basic HTTP methods such as GET and POST for handling file uploads, downloads, and user interactions. I integrated gzip compression to optimize response sizes when the Accept-Encoding: gzip header is present. Additionally, I added a User-Agent echo endpoint to display client information for debugging purposes. I utilized multithreading to efficiently handle multiple concurrent requests
- Tools Used: Rust, HTTP/1.1, Gzip compression

Ray Tracer in Rust Personal Project

- A high-performance ray tracer was developed from scratch in Rust. It features robust 3D vector mathematics, comprehensive operator overloading, and thorough unit testing. An efficient camera system was designed, incorporating viewport calculations and ray generation capabilities. Rust's type system was utilized to ensure strong compile-time guarantees and memory safety
- Tools Used: Rust, Linear Algebra, Computer Graphics, PPM Image Format

Ylib - C Standard Library Rewrite École 42

- Ylib is a modern rewrite of the C Standard Library that aims to enhance performance and maintainability while adhering to the ANSI C standard. It includes core C library components such as string manipulation, memory management, I/O operations, and math functions.
- Tools Used: C, Makefile, GCC, GDB

Push Swap École 42

- Push Swap is a 42 school project that sorts a stack of integers using minimal operations with an auxiliary stack. It focuses on algorithm optimization and data structure manipulation. I implemented sorting algorithms to minimize the number of operations required, achieving $\mathcal{O}(d(n+k))$
- Tools Used: C, Makefile, GCC, GDB

Skills & Technologies

Technical Skills

Programming Languages: C++/C, Rust, Golang, Python, Java, SQL, Kotlin, SQL, TypeScript, JavaScript, C#

Database & Storage: SQLite, MSSQL, MongoDB, Vector Databases (ChromaDB)

Frameworks: Raylib, React.js, Node.js, MAUI

Operating Systems: Unix, Linux(Debian, Arch, Ubuntu), Windows, MacOS

Tools: Git/Mercurial, Neovim, Tmux, GDB, Docker, JetBrains IDEs, Makefiles, Vercel,

Computer Sciences & Data Structures: Distributed systems, Database indexing, Linked Lists, Trees, Graphs, Heaps, Hash Tables, Dynamic Programming, Algorithm Optimization

Soft Skills

Team Collaboration, Problem solving, Mentorship, Adaptability, Communication, Leadership, Critical thinking, Time management.