Yashan Sumanaratne

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Portfolio: https://ys-raptor.github.io/Portfolio/

Profile

Mechatronics and Robotics Engineering graduate with permanent residency. Completed university projects in control systems, AI-based robotics, and embedded systems, along with personal projects in mobile, web, and systems development. Eager to contribute to software development roles, offering a multidisciplinary background and the ability to learn and work across domains.

Skills

- Experienced in Python, TypeScript, C/C++, Zig, MATLAB and Slang.
- Familiar with Git, Linux, and Nix.
- Developed applications for Arduinos, Raspberry Pis, and ABB IRB120 (robotic arm).
- Experience with React, NextJS and Astro for the web.
- Developed mobile apps with React Native and Expo.
- Experience with SDL, PyTorch, OpenCV and ffmpeg.
- Strong problem-solving skills with a collaborative mindset.

Experience

Freelance work for Triple Tea Café **2025**

- Developed a React Native app that tracks customer loyalty and rewards using QR codes.
- Collaborated closely with the business owner to understand requirements and adapt features based on feedback.
- Improved customer experience and reduced business costs by replacing physical cards with QR codes.
- Increased transaction speed by enabling cashiers to scan QR codes instead of stamping physical cards.
- Enabled storage of customer information for future marketing campaigns.
- Trained the business owner to use the app and QR code system, ensuring a smooth transition.

Final Year Research Project **2025**

- Developed a live video streaming protocol optimised for UAV systems performing AI-based video analysis.
- Managed the project independently, while proactively seeking guidance and incorporating feedback from the research supervisor.
- Outperformed existing protocols by reducing frame corruption and frame loss to 0% under poor network conditions; the best protocol tested showed about 52% frame corruption and 9% frame loss.
- Delivered latency on par with industry-standard protocols, ensuring reliable real-time streaming.
- Implemented a secondary output stream tailored for AI applications, achieving up to 22% better latency.

Maze Generator and Solver **2025**

- Developed a simple game with a procedural maze generator and a maze-solving agent using the SDL library.
- Applied game AI techniques including steering-force-based movement, A* search, and Goal-Oriented Action Planning.
- Enhanced the maze with doors and levers, where doors dynamically open and close, and levers permanently open doors, to increase problem complexity.
- Implemented and compared multiple planning algorithms for agents with limited information about the maze.

Education

Swinburne University, Bachelor of Engineering **2021 – 2025**
GPA: 3.96/4.0 (High Distinction, Avg. Score: 88/100)

Swinburne University, Engineering Foundation Year **2020 – 2021**
GPA: 4.0/4.0 (High Distinction, Avg. Score: 92/100)

Achievements

Swinburne Excellence Scholarship 2021
Pearson Edexcel 1st in the World: Lower Secondary Mathematics 2017

References

Nirosh Saminda Triple Tea Café Owner saminda@amconsultants.com.au	**Qiushi Zheng** Research Project Manager qiushizheng@swin.edu.au	**Jiong Jin** Research Project Supervisor jiongjin@swin.edu.au