

Sean Parkinson

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Education

Bachelor of Computer Science (Honours)

Feb 2024 – Present (Expected 2027)

University of Technology, Sydney

Relevant Coursework: Data Structures & Algorithms (HD), Theory of Computing Science (HD)

Experience

Industrial Sciences Group (ISG)

Jul 2025 – Jul 2026

Software Engineer

- Shipped a production RF link budget tool used by a defence client in place of manual field testing
- Built a full-stack application predicting 140+ building service assets per facility against Australian Standards, eliminating spreadsheet-based workflows
- Explored unsupervised clustering over 30,000+ asset records to test whether cross-facility classification could be automated beyond a rule-based approach

Projects

Order Book Engine | C++26

<https://github.com/SSeanPP/BookingEngine-LiveDashboard>

- Built a price-time priority matching engine and benchmarked four order book designs under simulated order flow to measure how data structure choice drives performance
- Compared four designs through a single constrained template and 1M timed samples per configuration, confirming the gain came from contiguous memory access rather than field separation
- VectorSoA achieved 30ns p50 / 210ns p99, a ~12× p99 improvement over the naive baseline, isolating contiguous memory access as the dominant performance factor

GPU-Driven Rendering Engine | Java, OpenGL

<https://github.com/SSeanPP/VoxelMVP>

- Built a multi-threaded voxel rendering engine sustaining ~72k streamed chunks at ~166 FPS on consumer hardware, with stable frame times even as chunks continuously load and unload during camera movement
- Moved draw submission onto the GPU with indirect rendering, keeping CPU draw work constant regardless of scene size
- Kept mesh generation off the render thread via a lock-free job queue feeding background workers, minimising frame-time spikes

Technical Skills & Interests

Languages: C/C++, Java, Python, C#, TypeScript, SQL

Frameworks/Tools: React, Node.js, SvelteKit, REST APIs, Git, Linux

Data & Systems: SQL Server, NumPy/SciPy, AWS, CI/CD, Cloudflare Workers

Interests: Motorbikes, Gym, Market Microstructure, Performance engineering