Lachlan Bridges

Adelaide, SA
0494 678 942 • lachlanjbridges@gmail.com
github.com/TheTailorRetailored • Australian citizen

Professional Profile

Software engineer and applied mathematician who builds substantial systems across backend services, web applications, AI tooling, data pipelines and quantitative research. Strong in Python and TypeScript, with a practical focus on clear architecture, automated testing, structured logging and documentation. Comfortable taking ambiguous technical problems from investigation through working software and reliable operations.

Technical Skills

Languages: Python, TypeScript/JavaScript, SQL, Bash, PowerShell, Solidity, R, MATLAB
Applications: React, Node.js, Express, FastAPI, REST APIs, WebSockets, pandas, NumPy
Systems: PostgreSQL, SQLite, Docker, Linux, GitHub Actions, Caddy/nginx, systemd
Specialties: system design, debugging, test automation, MCP/LLM workflows, quantitative modelling

Engineering Experience

Independent Software Development and Quantitative Research | 2022–Present

- Build substantial personal and collaborative software for market research, mathematics, publishing and home education.
- Built Cracktrader, a modular Python framework sharing strategy APIs across backtest, paper and live modes, with asynchronous market data, exchange integrations and deterministic execution.
- Develop TypeScript and React applications backed by REST/MCP services, PostgreSQL or SQLite, authentication and structured operational workflows.
- Build AI-enabled systems with typed tools, validated structured outputs, auditable changes and deterministic post-processing.
- Collaborate with another developer on architecture, implementation, testing and practical use of the systems.
- Operate personal Linux/VPS infrastructure using Docker Compose, Caddy/nginx, systemd, cron and shell automation.

Selected Projects

Cracktrader – Python trading framework covering CCXT exchanges and prediction markets. Supports complex order types, real-time WebSocket data and shared backtest/paper/live APIs. The repository contains 426 Python test files; documented throughput exceeds 55,000 candles per second.

Documentation: cracktrader.github.io/docs/

Maff – Self-hosted mathematics research platform with a TypeScript REST/MCP API, React workbench, PostgreSQL/Prisma, Auth0, audit logs, Lean integration and Docker/Caddy deployment.

MathMap – Adaptive mathematics application with a graph-based curriculum, placement and mastery models, typed learning interactions, local event logs, validation pipelines and parent-facing controls.

Academic Experience

Graduate Research Assistant, University of Adelaide | 2019–2021 – Built reproducible simulation and analysis workflows in Python, R and MATLAB for stochastic-process research.

Research Assistant, Technical University of Munich | 2019 – Developed modelling and simulation tools for logistics networks.

Tutor, University of Adelaide | 2017–2021 – Taught mathematics, statistics, numerical methods and introductory computer science.

Education

Master of Philosophy (Applied Mathematics) | University of Adelaide | 2017–2019
Bachelor of Mathematical Sciences (Applied Mathematics and Statistics) | University of Adelaide | 2014–2016