TAI TRAN

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PROFILE

Software engineer focused on outcomes: turning ambiguous requirements into shipped, maintainable software, owning delivery end-to-end, and balancing timelines, engineering capacity, and technical trade-offs. Primarily Python, but language-agnostic and happy to use the right tool for the job.

CORE COMPETENCIES

- Languages & Technologies: Python, Java, C#, SQL (PostgreSQL), HTML, CSS, JavaScript.
- System Architecture: Clean Architecture, Event-Driven Design, Scalable Web & Desktop Platforms, Financial Systems.
- AI & Automation: AI-Native Workflows, Agentic AI Integration, Automated Triage, Machine Learning.
- Performance & Data: High-Performance Computing, Real-Time Data Processing, GPU Computing (CUDA), Data Visualisation.
- Product & Design: UI/UX Design (Figma), REST API Design, Product Ownership, Project Management.
- Professional Practices: Automated Testing (pytest), Information Security, CI/CD, Logging & Observability.

PROFESSIONAL EXPERIENCE

Lead Software Engineer (Contract) | Lewy Security (Agentic Security Hardening)

Nov 2025 - Present | Sydney, New South Wales, Australia (Remote)

Major Duties:

- **Platform Development:** Architected a modular security platform (45k+ LOC) in Python. Designed a plugin system for 12+ security agents, enabling easy expansion and strict reliability.
- **Automated Security Workflow:** Built a high-speed data workflow that combined results from multiple security analysis tools into one unified model, handling up to 500+ findings per second.
- **Smart Risk Detection:** Implemented risk-density modelling to identify the top 10% of high-risk hotspots, reducing time-to-signal by 60% through better prioritisation.
- **AI-Powered Triage:** Integrated AI-driven triage to group thousands of security alerts, reducing false-positive noise by 75% via multi-stage verification against known patterns.
- **Guided Fix Process:** Developed a guided remediation workflow for security fixes, achieving a 65% first-pass acceptance rate for automated suggestions.
- **Performance & Tooling:** Built a high-performance CLI and audit system handling over 50,000 events with sub-50ms startup times, suitable for both local and automated usage.

Successes:

- **Improved Efficiency:** Reduced developer review time from hours to minutes, allowing teams to process batches of 50+ security issues at once.
- **Cost Optimisation:** Optimised AI costs by reducing token usage by 40% while maintaining accuracy in security fixes.
- **Rapid Scalability:** Demonstrated rapid scalability by adding three major new security domains (Secrets, IaC, Config) in under two weeks.
- **High-Quality Delivery:** Maintained 90%+ test coverage across the system to ensure long-term reliability and zero regressions during rapid iteration.

Lead Software Engineer | Hooper Music Studio (Contract)

Nov 2025 - Jan 2026 | Brisbane, Queensland, Australia (On-site)

Major Duties:

- **Product Development:** Led the end-to-end development of a business management platform modelling 20+ data areas. Managed 40+ seamless database updates for a growing user base.
- **Advanced Scheduling Engine:** Engineered a booking system evaluating 150+ weekly time slots per teacher against complex constraints like holidays and 24-hour lockouts.
- **Financial Systems:** Built a custom financial core and automated bank reconciliation system, handling thousands of transaction rows and producing real-time P&L; reports.
- **Payments & Commerce:** Integrated payment processing (Stripe) and automated invoice generation, eliminating manual administrative work for standard transactions.
- **Security & Ops:** Established rigorous security and operational standards (OAuth2, 2FA, automated testing) to protect business-critical logic and user data.

Successes:

- **Digital Transformation:** Reduced administrative overhead by 90% by replacing manual spreadsheets with an automated, event-driven ecosystem.
- **UX/UI Improvements:** Refactored the user interface into 30+ modular components, delivering a faster, responsive experience with features like dark mode.
- **Rapid Delivery:** Delivered complex new features (e.g. Lesson Escalations) in rapid 2-week cycles while maintaining 100% production stability.

Lead Software Engineer (Contract) | Valgo Trading

Jun 2025 - Dec 2025 | Brisbane, Queensland, Australia (Hybrid)

Major Duties:

- **System Design:** Architected a massive desktop platform (200k+ LOC) using Python. Organised the codebase to separate business logic from analysis, improving system reliability.
- **AI Integration:** Engineered an AI decision layer that used structured "Market State" models to reduce errors and ground reasoning in factual data.
- **High-Performance Analytics:** Built a high-performance visual engine to render 10,000+ interactive data points in real-time at 160 frames per second, bypassing standard industry bottlenecks.
- **Operational Efficiency:** Developed a thread-safe system to manage high volumes of incoming data without freezing the user interface during heavy AI processing.
- **Data Integrity:** Integrated real-time data feeds into a unified engine used for both testing and live execution to ensure results are identical and reliable.

Successes:

- **Performance Optimisation:** Outperformed industry-standard visualization tools by 5x, achieving ultra-smooth performance for high-density data.
- **Reliable Autonomy:** Delivered a reliable "human-in-the-loop" AI system where every decision is clearly explained and visually supported in real time.
- **System Stability:** Eliminated system crashes and data loss during high-volatility events by implementing robust state management and immutable snapshots.

KEY PROJECTS

Date Range Picker - User Interface Component

- Built a reusable date/date-range picker widget with clean Qt signals to decouple UI from business logic.
- Packaged as an installable library with semantic versioning, documentation (MkDocs), and CI-tested coverage (pytest + pytest-qt).

EDUCATION

Bachelor of Information Technology - Major: Computer Science; Second Major: Computational and Simulation Science

Queensland University of Technology (QUT), Brisbane

WRITING & COMMUNICATION

- “Valgo: A Modern Trading System” - A detailed overview of how a complex trading platform is built, from data processing to automated execution.

- “Improving AI Development with Documentation” - An article explaining how structured documentation helps AI tools assist developers more effectively.
- “Valgo Development Update” - A report on the progress, design choices, and lessons learned while building a trading application.
- Project Reflections - Detailed reviews of past projects, analysing what worked well and how to improve future software development.

REFERENCES

References available upon request; reference page will be provided.