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

- Product Delivery: End-to-end ownership of software products, from initial concept and requirement gathering to deployment and maintenance.
- Process Automation: Specialised in identifying administrative bottlenecks and implementing automated workflows that reduce overhead by up to 90%.
- Decision Support Systems: Experience building AI-driven tools that normalise complex data into actionable insights for human decision-makers.
- Systems Thinking: Deep understanding of how modular design and structured data improve long-term reliability and team scalability.
- Strategic Trade-offs: Proven ability to balance rapid feature delivery with technical stability and project timelines.
- Communication & Leadership: Skilled at translating complex technical constraints into clear business options for stakeholders.

PROFESSIONAL EXPERIENCE

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

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

Major Duties:

- **Product Leadership:** Architected a modular security platform using Plugin Architecture, unifying 12+ distinct security tools under a single framework for consistent analysis.
- **Automated Risk Analysis:** Engineered a normalization engine that maps disparate security outputs into a unified model, with a parallelized pipeline for high-speed local processing.
- **Smart Prioritisation:** Implemented risk-density modelling to isolate the top ~10% of security-sensitive hotspots, allowing teams to focus manual review on the most critical surface areas.
- **AI-Assisted Operations:** Integrated intelligent LLM-based triage to cluster thousands of raw alerts, mitigating false-positive fatigue by cross-referencing findings against known safe patterns.
- **Guided Workflow Design:** Implemented a 'Human-in-the-Loop' remediation workflow, constraining automated fixes to verified syntax and scoped code windows to ensure system safety.
- **System Infrastructure:** Developed a high-performance developer CLI with near-instant startup and a local SQLite tracking system for a reproducible audit trail of security events.

Successes:

- **Operational Efficiency:** Transformed fragmented reviews into batch workflows, enabling teams to triage 50+ related issues in minutes rather than hours.
- **Cost Optimisation:** Reduced operational costs by ~40% via AST-based context slicing, ensuring only relevant data was processed for remediation.
- **Rapid Scalability:** Modular design enabled new analysis domains (e.g., Secrets detection) to be added in days rather than weeks with zero core orchestration changes.
- **Reliability & Quality:** Maintained >90% test coverage on the core engine, ensuring consistent and stable behavior across diverse project structures.

Lead Software Engineer | Hooper Music Studio (Contract)

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

Major Duties:

- **Product Architecture:** Architected a modular SaaS platform using FastAPI and PostgreSQL, designing a robust data structure to ensure absolute consistency across user management, scheduling, and finance.
- **Advanced Scheduling Engine:** Engineered a smart booking system that handles recurring patterns and complex business constraints (e.g., holiday lockouts) automatically, eliminating scheduling conflicts.
- **Proprietary Financial Core:** Built a custom double-entry accounting system with automated transaction processing to ensure 100% accuracy between bank records and internal financial reporting.
- **Commerce & Automation:** Streamlined business operations by integrating digital payments with automated revenue recognition, directly linking point-of-sale events to the internal general ledger.
- **Security & Quality:** Established high-standard security boundaries and a proactive quality pipeline to catch potential errors in complex business logic before they impact operations.

Successes:

- **Digital Transformation:** Reduced administrative workload by ~90% by replacing fragmented manual processes with a unified, event-driven system for payroll and invoicing.
- **Efficient User Interface:** Delivered a fast, responsive dashboard using a lightweight architecture that minimizes maintenance while maximizing performance.
- **Rapid Business Growth:** Enabled the quick delivery of complex features (e.g., student escalation systems) in 2-week cycles while maintaining perfect stability in the financial core.

Lead Software Engineer (Contract) | Valgo Trading

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

Major Duties:

- **Systems Design:** Led the architecture of a large-scale (200k+ LOC) data analysis and decision platform, ensuring a clear separation between analytical models and core business logic for high reliability.
- **Intelligent Decision Support:** Engineered an AI decision layer using fine-tuned models, grounding automated reasoning in structured data states to eliminate errors and ensure factual accuracy.
- **High-Performance Data Visualisation:** Built a custom GPU-powered visual engine to render 10,000+ interactive data points at 160fps, bypassing standard tool limitations to enable instant user reactions.
- **Operational Efficiency:** Developed a high-throughput event management system to handle massive data ingestion, solving system-freeze issues during heavy AI processing through advanced state synchronization.
- **Data Reliability:** Integrated real-time data feeds into a unified engine used for both historical simulation and live execution, ensuring 100% validity of system simulations.

Successes:

- **Performance Leadership:** Achieved a 160fps performance benchmark for high-density data environments, eliminating user interface latency and improving decision speed.
- **Reliable Autonomy:** Delivered a stable 'Human-in-the-loop' system where every automated AI decision is transparently explained and visually supported in real-time.
- **System Stability:** Eliminated data inconsistencies and system crashes during high-volatility events by implementing robust state management and safeguards.

KEY PROJECTS

Date Range Picker - Modular Interface Component

- Developed a reusable interface component for selecting dates and ranges, designed for seamless integration into larger business applications.
- Delivered as a professionally packaged library with clear versioning, comprehensive documentation, and automated quality assurance testing.

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 Decision Support System” - A detailed overview of how a complex data platform is built, from information intake to automated execution.
- “Improving AI Performance with Structured Context” - An article explaining how clear documentation and structured data help AI tools assist people more effectively.
- “Valgo Strategic Progress Report” - A report on the development milestones, design choices, and lessons learned while building a complex data application.
- Project Case Studies - Detailed reviews of past projects, analysing performance, risk management, and opportunities for future improvement.

REFERENCES

References available upon request; reference page will be provided.