
Alex Pappas

FORWARD DEPLOYED ENGINEER | APPLIED AI | FINANCIAL SERVICES

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PROFILE

I ship LLM and data systems into production, then operate them. Seven years inside Australian banking and government operations, owning forecasting and analytics across 800+ FTE and presenting recommendations at executive level. Today I run eight live client products on retainer and an autonomous operations engine of 15,600 lines, and I delivered a contract computer-vision system scoped from a discovery call and shipped in two days. I embed with the customer, find the real problem, ship it, then own it in production. Cost caps, failure detection and evaluation go in from the first commit, because I am the one who gets paged.

SELECTED WORK

Optible activation system CONTRACT DELIVERY, CUSTOMER-EMBEDDED

Scoped from a single discovery call with an external stakeholder and delivered in two days as a working system plus hosted dashboard. 6,400 lines of Python: face detection, 128-dimension embeddings, HDBSCAN clustering and FAISS nearest-neighbour matching against enrolled identities, with a precision and recall threshold sweep. V-measure 0.997, precision 1.00, recall 0.95 on the LFW benchmark. I label what is measured versus what is simulated. Python, dlib, HDBSCAN, FAISS, scikit-learn.

agency-engine, an autonomous operations layer running in production 15,600 LINES

Scheduled Python pipelines (Supabase, GA4, Search Console, Vercel, Xero, Lighthouse) feeding a 19-table warehouse. After one pipeline failed silently for nine days because it exited zero while writing nothing, I built the layer that would have caught it on day one: freshness tripwires, read-only canaries against each client's production database, and a health doctor that reconciles exit codes against SQL assertions. A job that exits clean and writes nothing now fails loudly. Python, SQLite, launchd, Supabase.

Sorted LIVE, OPEN SOURCE, MIT

A free tool at insorted.au surfacing missed tax deductions for Australians. A deterministic ATO-rules calculator validates and overrides the model's numbers before they reach the user: a shipped guardrail against hallucinated figures in a domain where a wrong number has consequences. No signup, no data stored. Next.js 16, React 19, Claude API.

Scout, an autonomous agent running a live job search end to end PUBLIC ON GITHUB

Polls 146 company boards directly, normalises and dedupes roles across incompatible ATS schemas, and ranks them against a fit rubric, surfacing roles that never reach the aggregators. 24 tests green, with company-priority signals deliberately neutralised before open sourcing. Python, Anthropic SDK.

LLM features inside a paying customer's product LIVE

Shipped receipt OCR with expense extraction, plus menu intake, into a live catering client's product. Model output feeds a real business workflow in production today, not a demo. Claude API, Next.js, Supabase, Vercel.

Variance, a simulation engine productised behind a versioned API

FastAPI service over an Erlang C, discrete-event and forecasting core, where every response carries an engine version and an input hash, and every run is replayable from a deterministic seed. 300 engine tests plus 45 service contract and golden tests. Built for the workforce-planning problem I own in my day job. Python, FastAPI, SimPy, PuLP.

EXPERIENCE

Senior Workforce Analyst

Jun 2023 to present

Bendigo and Adelaide Bank · Adelaide then Melbourne

- Own operational analytics across six portfolios spanning 800+ FTE (Customer Contact, Financial Crimes, Mortgage Help Centre, Customer Resolutions, Operations, Process Improvement), presenting recommendations to senior, executive and board level in a regulated enterprise.
- Advised executive leadership on an operating-model change that cut contact volume and staffing cost with no measurable customer-experience impact, freeing roughly 6 FTE.
- Replaced a proposed vendor solution with an in-house SQL and Power Automate compliance process, avoiding roughly US\$15k a year in licence cost and an external consultancy engagement.
- Built the SQL and Oracle data models and Power BI semantic models behind production dashboards with up to 116 daily users on intraday reporting.
- Designed an FTE benefit modelling and tracking framework adopted organisation-wide: a reusable framework, not a one-off analysis. Trained 3 analysts and set the team's metric-definition standards.

Founder and Engineer

Mar 2026 to present

Groundwork Digital Studio · Melbourne

- Embed with each business owner, scope the problem, ship to production, then operate it on a retainer: 8 live client products on custom domains, built for trade and hospitality operators who will never open documentation.
- Built and run 5 client CRM and admin platforms totalling roughly 43,800 lines across 243 files, the largest behind 41 API routes: lead capture and pipeline stages, authenticated admin, quoting and enquiry workflows, transactional email and reporting.
- Next.js, React 19 and TypeScript on Supabase Postgres with row-level security, Stripe Checkout with signature-verified webhooks, and per-domain SPF, DKIM and DMARC.
- Security-hardened every site (CSP, HSTS preload, X-Frame-Options, server-side input sanitisation on every public form). Lead pipelines have captured 47 real customer enquiries, watched by a daily canary that asserts the read path still works.

Workforce Planning Analyst

2019 to 2023

Dept for Infrastructure and Transport (Service SA) · Adelaide

- Joined on the frontline as a Customer Service Officer, promoted to Assistant Manager, then promoted into the analyst role in 2021.
- Forecast demand and built capacity and rostering models for a multi-channel operation of 300+ FTE across 22 metro and regional centres, and upskilled government staff onto Power BI and Python.
- Delivered a Saturday trading workforce rollout, a new contact centre system and a staff database, advising directors and managers on workforce, budget and forecasting decisions.
- Ranked the Adelaide centre's top performer before promotion, serving 30% of all customers at an eight-person site.

Member Service Consultant

2017 to 2019

Credit Union SA · Adelaide

- Contact centre lending and insurance, fraud identification and mitigation, first-point resolution against KPI and deadline targets.

TECHNICAL SKILLS

Languages	Python (agent pipelines, ML and computer vision, forecasting, ingest engines), TypeScript, React, Next.js, SQL (Postgres, Oracle, SQLite, SQL Server)
Agentic AI	Anthropic SDK and Claude Agent SDK, MCP tool integration, hand-rolled orchestration and tool-permission layers, RAG (ChromaDB, local Ollama embeddings), FAISS vector search, evaluation harnesses and threshold sweeps, hard spend caps with pre-call cost estimation, scheduled autonomous workers
Production	Vercel, Railway, Docker, GitHub CI/CD, launchd schedulers, Supabase (Postgres, Auth, RLS), Stripe, Resend, GA4 and Search Console APIs, schema migrations, observability and health-check layers, pre-push CI gates
Data and modelling	Power BI (DAX, semantic models), Oracle, Pandas, SimPy, PuLP, Streamlit, Erlang C and discrete-event simulation, demand forecasting

EDUCATION

Bachelor of Cyber Security	University of South Australia, 2021 to 2022. Two years completed, not conferred, studied alongside full-time work.
Certificate III	Financial Services, Accounting and Finance
Google Certificate	Technical Support Fundamentals