Maverik Gately

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Highlights used for areas of interest: Technical focus, Commercial value, and Other items of interest.

Three decades of engineering rooted in first-principles thinking: from performant code and large-scale refactors to custom neural architectures. A rare deep generalist with an eye for detail, solving business-critical problems others stalled on, and a can-do attitude delivering results.

AI - Architecture to Inference

Mav's Work
Aug 2025 - To Date

AI work conducted over evenings and weekends on personal hardware (RTX PRO 6000 Blackwell 96GB) and subscriptions (Claude, Grok, local Qwen). All projects developed through sustained AI partnership: architecting, directing, and reviewing in continuous multi-session workflows with persistent context. This is the model I bring: first-principles design amplified by deep AI collaboration, where the partnership produces outcomes that would have been just out of reach historically.

AI Augmentation Harness

Accuracy-first Design
Data-Sovereign AI

- Built a vendor-neutral orchestration harness in TypeScript/Bun with RxJS reactive tool loops and scatter-gather multi-agent parallelism for LLM-assisted design and code review. 566 structured agent sessions persisted via SQLite for SFT fine-tuning and model reinforcement.
- Supports fork, pause, resume, cancel with state preservation and mid-execution redirection. LLM self-guided context compaction for sessions beyond 760K token context. MCP bridge exposing 40+ tools with fallback chains.

Continuity

Inference & Training
Windows CUDA Engine

- Building a Windows-first inference engine in Zig/CUDA: 141 kernels across 17 categories, 283 modules, model-agnostic DAG execution graph.
- IOCP-driven pipeline: NVMe at queue depth 96, 2-3 GB/s. GPU VMM with per-GPU VA pools and sub-2MB allocation granularity.
- Quantisation Q4_0 through NVFP4 with warp-cooperative GEMV. Format-agnostic GGUF/SafeTensor loading. Validated on SmolLM2-135M and Trinity Mini MoE.

Clarity

Anomaly Detection
Custom Neural Network

- Designed a 5-axis transformer: Feature, Temporal, Peer, Structural (GATv2 for organisational hierarchies), and Causal attention, each decomposing a different noise dimension. Cartesian MoE: 21 experts across 5 routing dimensions with 5 active per observation.
- Two-phase causal training, sigma-reparameterisation, and MLA compression. Curriculum-trained on RTX PRO 6000: loss 0.0018, FPR 4%, inference 3-5ms. Architecture is domain-agnostic, equally applicable to fraud detection, manufacturing quality control, or clinical anomaly spotting.

AI & ML

- Model Architecture
- Agent Orchestration
- Embeddings / RAG
- GPU Programming
- PyTorch

Engineering

- C# / LINQ / EF
- Performant Code
- AspNetCore/MVC
- System Design
- API Design
- SQL/DDL/DB Design
- Html/CSS/JS
- WPF/XAML/MVVM

Data & Infrastructure

- MSSQL/Postgres
- Data Analysis / BI
- Functional Paradigm
- Git
- DevOps
- Docker
- Azure Cloud

Leadership

- Leadership
- Mentoring
- Line Management

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Engineering & Management Career

.Net, Azure, Leadership
2010 - To Date

Senior Software Engineer

IMP Software Limited
May 2024 - July 2026

- Resident expert on C#, LINQ and Entity Framework. Chosen as one of two platform engineers from 20+ seniors, owning development, maintenance and architecture for the full suite.
- Delivered £17K annual savings from a single PR by designing a multi-agent swarm that ingested 260K+ App Insights log entries, correlated with Azure DevOps timelines, PRs, deployments and cluster metrics across specialised intelligences. The optimisations identified cut production DB round-trips by 58-86%.
- Rebuilt auditing using dynamic Expression tree (composed through Expression operators) for type-safe batch queries and a zero-allocation Result<T> monad, replacing per-cell DB calls. 3 orders of magnitude speedup was achieved on the slowest bottleneck in all queries.
- Developed a PR-tuned code review persona by distilling 352 of my own historical PR comments (anonymised internally) into checklists and areas of focus in a Markdown system prompt. Reviews posted inline suggestions to Azure DevOps via API with full line by line comments and inline suggestion blocks with built-in severity analysis, limiting comments to non-trivial impactful changes and explicit accommodation of the team members' style choices.
- Built a cross-application integration testing framework for in-process end-to-end testing of OIDC flows, Blazor BFF and redirects, replacing hour-long CI round-trips with seconds-fast local verification through a hookable interception pipeline. This had been a highly desired feature for years before I volunteered to create the base framework in my own time and donated to the team. This enabled the side-by-side delivery of Central Authentication (OIDC) migration via single feature flag, zero code changes for 37+ downstream consumers verified on each CI run by the integration suite.
- Designed MSBuild infrastructure across 145+ projects (Directory.Build.props, Central Package Management, dynamic GitInfo seeding deterministic test data). Cut .NET upgrades from weeks to ~1 hour and frontend builds from 60s to under 1 second (webpack migrated to rspack)
- Patched a release show-stopper bug in week 1, delivering extensive cross-customer testing to validate database migrations across all customer combinations. This was especially daunting task as I was the only team member (still in my on-boarding) available in the team on the day and the showstopper bug had caused 500+ customers to be rolled back to previous build

Contracting & Freelancing

Mav's Work
Jun 2021 - April 2024

- Led a delivery team at Zenzero Solutions through legacy-to-modern migration (.NET and Power Platform), participating in board-level investment decisions while mentoring team members and fostering ownership.
- Supported specialist engagements at Lexacom and Capital Pilot through crunch periods - .NET and WPF modernisation, DevOps containerisation with Docker and Podman, mentoring teams on C#, security practices, and modern JS toolchains. Received a glowing letter of recommendation.
- Mentored and served as a technical expert for Moon Prints, an eight-month project involving HTML5 Canvas powering the embedded art designer, enabling personalised print for consumers' needs.
- Performed IT and DevOps project work setting up everything online from scratch from domain purchase to CI/CD web hosting (this CV is deployed via CD) to DKIM/DMARC/SPF/BIMI for email flow.

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Development Manager

AWSM Technologies Ltd
Sep 2019 - May 2021

- Grew the team from 12 to 26 developers (including 9 seniors), launching 2 new product lines while reducing release cycles from 5 days to 3. Introduced collaborative backlog ownership - developers self-selected tasks regardless of seniority, enabling implicit knowledge transfer and accelerating team growth while improving satisfaction and delivery cadence.
- Key participant in board meetings during strategic decisions around future development and investment.
- Upskilled the team through ongoing detailed code reviews and regular training sessions. Trained a graduate with a business-focused degree from the ground up into a core team developer on the flagship product.
- Fostered self-sufficiency and ownership within the team.
- Led various Agile meetings including Sprint planning, Daily stand-ups, Retrospectives.

Senior Developer

AWSM Technologies Ltd
Sep 2018 - Aug 2019

- Lead developer for flagship payroll product.
- Significantly boosted performance across all aspects of the flagship product.
  - Reduced the most used and data-rich page renders from 40+ to 0.64 seconds average through service code and Entity Framework query optimisations.
  - Improved a second heavily used page's performance from 30 to 0.07 seconds on average.
  - The biggest improvement was in a reporting page where the time to render thousands of results was brought down from 180 to 1.2 seconds on average.
- Performed expert refactorings across the entire codebase (no tests, no documentation) without regression. The standout was an invoice rounding standardisation as a 200,000 line refactor involving C# and inline SQL with zero test coverage: happy to walk through how.

Software Architect

Backbone (UK) Limited
Jun 2010 - Aug 2018

- Grew from first commercial developer role to Software Architect over 8 years under mentorship that shaped my commercial awareness and engineering standards.
- Wrote code that deployed directly to production on a 24/7 cloud hosting platform - no staging, no rollback. Zero-defect delivery across 8 years on live infrastructure serving paying customers.
- Built cloud infrastructure monitoring that drove billing accuracy and capacity planning across the hosting fleet. Developed desktop apps (client-facing and internal tools) using WPF.
- Conducted data analysis yielding billing and utilisation reports with LINQPad and Excel Power Query (using M functions) from databases, CSV, XML, JSON and XLSX files as well as connecting OAuth webservices.
- Technical lead on cybersecurity and privacy matters offering recommendations to keep the company compliant and safe.