

ADAM VAKAR

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TECHNICAL SKILLS

Languages: Python, Go, Java, TypeScript, JavaScript, SQL
Systems: distributed systems, concurrency, gRPC, Kafka, REST APIs, Data Structures & Algorithms
Infrastructure: Linux/Unix, Docker, Kubernetes, AWS, Jenkins, CI pipelines, Bash, Git
AI/ML: PyTorch, scikit-learn, Pandas, NumPy, LLMs, RAG, pgvector, embeddings
Databases: PostgreSQL, Redis, MongoDB

EDUCATION

Technological University of the Shannon (TUS)

Sep 2024 - May 2028

Software Design with Artificial Intelligence for Cloud Computing — BSc (Hons), NFQ Level 8

- Expected graduation: May 2028.
- Year 1 average: 76%, Year 2 average: 84%. First Class Honours in both years.
- Dean's List Recipient (2 consecutive years)

EXPERIENCE

Ericsson R&D, Software Engineering Intern

May 2026 - Sep 2026

- Took initiative to improve an internal agent-based migration pipeline by introducing validation checks and transformation enhancements, **reducing incorrect migration outputs by 20%**.
- **Introduced a condition-based polling utility** into an internal Java test framework, replacing scattered hardcoded `Thread.sleep()` calls with a single reusable primitive for asynchronous assertions and removing a recurring source of non-deterministic test failures.
- Selected for a sub-team building an internal Python orchestrator that manages ~5 coordinated agents spanning test development and internal tooling, replacing a manual multi-step workflow which is **adopted as the standard across the department**.
- Designed test classes, reusable helper modules, and framework integrations to migrate legacy Cloud RAN validation suites, tests that run in production against physical radio node hardware.
- **Investigated defects in an internal test automation framework** affecting Cloud RAN test migration, fixing 2 directly and escalating the rest through a review I initiated with the framework's product owners, improving migration reliability and reducing manual intervention during test onboarding.

PROJECTS

GoBank — Microservices Neobank

GitHub: github.com/Adverse/Neo-Bank

Stack: Go, gRPC, Kafka, PostgreSQL, React, TypeScript, Docker

- Built a neobank as six Go services behind a custom gateway, sign-up and authentication, accounts, a double-entry ledger, transfers, card deposits through Stripe, fraud checks and notifications with 124 integration tests in CI and the whole system starting locally from a single command.
- Recorded every movement of money as a balancing pair of entries in an append-only ledger, so balances are always derivable and can never silently drift. Concurrent transfers on the same account are serialised so an account cannot be overdrawn.
- Made payments safe to retry: an event is published only after the database change it describes commits, and repeating an operation, whether by a retrying client, a redelivered message or a duplicate Stripe webhook, leaves the ledger exactly as one successful call would.
- Added a background worker that finds transfers and deposits left in an unknown state after a failure, checks them against the ledger and Stripe, and completes or reverses them, raising an explicit alert if money was ever debited from one account without being credited to the other.

StudyPilot — Agentic Learning Platform

GitHub: github.com/Adverse/Study-Pilot

Stack: FastAPI, React, TypeScript, PostgreSQL, pgvector, Telegram Bot API, Docker

- Developed a full-stack AI learning platform that turns user goals into adaptive roadmaps, daily focus plans, RAG-based document Q&A, analytics, and weekly reviews.
- Designed backend architecture with FastAPI, PostgreSQL/pgvector, Telegram Mini App authentication, document ingestion, vector search, AI agents, and user-scoped data flows.
- Added production-minded engineering practices including Docker Compose, raw SQL migrations, typed API contracts, health checks, CI, and automated tests.

Mini LLM — 3-Layer LLM Inference System

GitHub: github.com/Adverse/Mini_LLM

Stack: PyTorch, FastAPI, React, Docker, Transformers

- Designed a 3-layer LLM application architecture separating React frontend, FastAPI inference API, and an importable PyTorch LLM engine for cleaner testing, serving, and modular development.
- Built a **39.1M-parameter** decoder-only Transformer in PyTorch with RMSNorm, RoPE, SwiGLU, causal self-attention, GPT-2 tokenization, KV cache, and top-p generation.
- Architected a full-stack inference demo with Docker that incorporated REST endpoints for model health checks and metadata and text generation using compatible .pt checkpoints.
- Trained the model on cloud GPU and ran experiments against the resulting checkpoints, comparing how changes to the training setup and to sampling settings showed up in the generated output.

ACHIEVEMENTS AND LEADERSHIP

- **Winner, Build for Ireland Hackathon** (40+ teams; OpenAI x Give(a)Go x Dogpatch Labs, Dublin AI Week 2026). With a team of 3, built HomesAbove in one day, combining a fitness app with a map-based search for abandoned homes that could return to the rental market, using React, MapLibre/deck.gl, FastAPI and MongoDB Atlas.
- **2nd Place, Governance Track, Claude Hackathon**. Built Voxify, a platform for Trinity College Dublin students to file improvement proposals and get a response from administration, taking it from empty repo to working demo in one weekend.
- **Selected for Google's Student AI Hackathon 2026**, one of ~50 student engineers chosen across Ireland. With a team of 4, built GoPlan in a 6-hour sprint: a multi-user Gemini application orchestrating live flight, hotel and pricing APIs in real time (no mock data), with role-based permissions controlling which travellers can trigger each API call. Pitched it to Google engineering leaders. Also selected for Google's 2026 Algorithms Workshop and attended the 2025 Agentic AI Workshop.
- **Top 8 of 40 teams at the GTM Hackathon**, presenting to judges from OpenAI. Also competed at ETH Dublin 2025, NASA Space Apps Challenge, Craicathon and the Claude Code Hackathon.
- **Founder & President, Computer Science Society, TUS Athlone**. Grew the campus's only dedicated CS society from zero to 40+ members; runs technical workshops, including a Machine Learning workshop, plus member projects and mini-hackathons. Also founded a 100+ member community for Ukrainian students in Ireland and serves as elected Class Representative for the year group.
- **Formula Student team member**. Writes the Python that turns raw test and sensor data into metrics the team uses for design decisions on the car, and explains what the data does and does not support to mechanical and electronics teammates.