

ANDRII KULYZHISKYI

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Professional Summary

Engineer and cybersecurity-focused computer science graduate building AI, cloud, and education technology systems. Co-founded Mentor Lumen, where I designed a personalized learning platform, multi-service architecture, secure AWS infrastructure, and AI-assisted development workflows. Experienced across distributed systems, cloud infrastructure, payment infrastructure, observability, applied AI automation, open-source AI products, and quantum computing research.

Work Experience

Mentor Lumen

Warsaw, Poland

Co-Founder & Lead Engineer

August 2025 – June 2026

- Designed and built a personalized education platform (Spring Boot + Python + Node.js cloud services on AWS) that generates learning and practice materials for each learner through **agentic RAG** flows over a curated knowledge base of **1,000+ documents**, achieving **87% nDCG@10** and **90% MRR@10** in production.
- Designed a **multi-service architecture** with clearly bounded service responsibilities and end-to-end tracing and observability across distributed components.
- Configured an AI-assisted development harness that compressed idea-to-integrated-PoC cycles from **weeks to days** while preserving security, observability, and architecture standards.
- Architected and provisioned secure, resilient AWS infrastructure from scratch, then optimized resource allocation as load patterns emerged, **cutting running costs by 30%**.
- Built a real-time voice agent with the Gemini Live API serving as the platform's voice engine, streaming audio over WebSocket, handling **1,000+ concurrent connections** in production.
- Implemented a lead generation agent on AWS AgentCore, built with LangGraph (tools, planner, conversation memory) and guarded by input validation, authorized access, and human review of agent output, surfacing **100+ qualified candidates daily** at an **11% conversion rate**.
- Improved engineering quality by enforcing **100% test coverage** across Spring Boot & FastAPI services.

Unichack

Ukraine, Remote

Software Engineer

July 2025 – August 2025

- Unified **4 payment gateways** and Nova Poshta logistics behind a single API, bringing **30+ Ukrainian merchants** live with zero custom storefront integrations.
- Delivered **exactly-once payment processing** across all 4 gateways, holding order state consistent through provider outages and rate-limit spikes with a guarded order state machine and **async retry queues**.
- Shipped **sub-1-second** checkout widgets across Shopify, Webflow, and WIX with zero theme conflicts, sparing merchants a **\$15,000** annual certification fee.
- Sustained **99.9% uptime** with a self-healing reconciliation loop that polled gateway status APIs every five minutes and repaired stalled payments automatically, running on isolated queues that gave money paths their own dedicated lanes.

Freelance

Ukraine, Remote

DevOps Engineer & CTF Creator

October 2024 – July 2025

- Developed **40+** advanced CTF challenges covering web exploitation, reverse engineering, and cryptography, achieving **93.4% positive feedback** for complexity and logic.
- Engineered Attack & Defense scenarios with vulnerable microservices and automated scoring scripts to simulate real-world patch/exploit cycles.
- Designed resilient competition infrastructure supporting **200+ concurrent connections** with zero downtime during the primary competition day.

AI Quantum Tech

Warsaw, Poland

Co-Founder & Lead Researcher

May 2024 – Present

- Co-founded and led a student research group turning AI and quantum computing research into **practical optimization prototypes** with professors across multiple universities.
- Built a quantum European options pricing prototype demonstrating a **quadratic speedup** path over classical Monte Carlo, targeting faster risk analysis for finance teams.
- Led development of a **quantum circuit optimization** pipeline pairing **machine learning** models with C++ tooling, compressing manual hardware tuning from **6 days to 30 minutes** by automatically selecting transpilation strategies for specific hardware targets.
- Contributed to a **post-quantum authentication** microservice using **Kyber and Dilithium**, helping future-proof customer identity flows against emerging cryptographic threats.
- Mentored junior researchers from quantum fundamentals to production-minded experiments, enabling the team to independently design, test, and present **QML algorithms**.

Personal Projects

- AI Neuro-Marketing Validator | *React, TypeScript, FastAPI, TRIBE v2, Claude API, GPU* Open Source
 - Built a full-stack AI application that analyzes marketing videos by combining TRIBE v2 neural response prediction, Glasser Atlas brain-region mapping, and Claude-generated recommendations, translating cortical activation into marketing content scores and improvement suggestions.
- Meal Bot | *Python, Telegram Bot API, Gemini, Notion API, Docker* Open Source
 - Built an AI-powered Telegram bot that turns quick video notes into structured meal logs, using Gemini video understanding to estimate food items, meal type, calories, protein, carbs, and fat before logging results to Notion.

Education

- Polish-Japanese Academy of Information Technology Warsaw, Poland
Master's Degree, Data Science March 2026 – 2027
- Polish-Japanese Academy of Information Technology Warsaw, Poland
Bachelor's Degree, Computer Science; Cybersecurity Specialization October 2022 – February 2026
 - Finished bachelor's degree with final grade 5; received the Rector's Scholarship consecutively for all 3.5 years of undergraduate study.
 - Created the subject "Introduction to Quantum Computing," launching in the curriculum in Winter 2026/2027.

Skills

- Engineering:** Distributed Systems, Scaling Architectures, Design Patterns
Cloud & DevOps: AWS, GCP, Linux, Docker, Kubernetes, Terraform
CI/CD: GitHub Actions, GitLab CI, AI-augmented development
Observability: Prometheus, Grafana, PostHog, Datadog, distributed tracing, incident response
Databases: PostgreSQL, MySQL, MongoDB, Redis
AI & ML: LangGraph, LangChain, AWS AgentCore, RAG, pgvector, Prompt engineering, Guardrails, Human-in-the-loop, Hugging Face, LlamaIndex, Transformers
Research: quantum machine learning, quantum circuit optimization, post-quantum cryptography
Security: SIEM, Web exploitation, Reverse engineering, cryptography, Attack & Defense
Programming: Java, Python, NodeJS, JavaScript/TypeScript, Bash
Leadership & Strategy: Agile planning, Mentoring, Resource optimization, Cross-team collaboration

Languages

- English: C1 | Polish: B2 | Ukrainian, Russian: Native