ALEKSANDRE KHVADAGADZE

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EDUCATION

Saint Louis University School of Engineering — **St. Louis, MO**
Bachelor of Science in Computer Science — ***May 2027***
- GPA: 3.33/4.0 | Dean's List Fall 2024

Projects

BachmannLogi – Warehouse Staffing Management System (SkyInsights) — ***Tbilisi, Georgia***
Client Project | FastAPI, React, TypeScript, PostgreSQL, Supabase — ***Jul 2026 - Present***
- Built an internal staffing platform replacing an all-Excel workflow for a German logistics contractor; async FastAPI/SQLAlchemy backend and React 18 + TanStack Query frontend deployed across Render and Vercel.
- Authored 3 Excel ingestion pipelines parsing attendance, personnel, and productivity workbooks into an Alembic-managed PostgreSQL schema, with a REST API spanning employee, scheduling, and performance endpoints.
- Secured GDPR-regulated employee PII through EU-only hosting and asymmetric JWT verification against Supabase JWKS, routing every query through the backend rather than direct client database access.

J.U.T.S.U. - Joint Upper-limb Tracking System for UI augmentation — **St. Louis, MO**
Personal Project | Python, MediaPipe, scikit-learn, CuPy, OpenCV — ***Jan 2026 - Present***
- Built a multi-threaded Windows service detecting hand gestures via a custom ML ensemble and rendering GPU-accelerated visual effects onto a live virtual camera feed in Discord and OBS.
- Engineered consumer detection via a timing-based IPC side-channel reverse-engineered from compiled binary, achieving zero CPU/GPU usage at idle with automatic pipeline activation.
- Designed an 83-dimensional hand pose feature vector with wrist-origin normalization, joint bend cosines, and 10x training augmentation; implemented real-time audio mixing through a virtual microphone.

Vigilane – AI Road Hazard Detection System
4-Person Team | Python, Flask, Firestore, YOLOv8 — ***Feb 2026***
- Owned the database and API layer of a real-time dashcam hazard detection system: 6 Firestore service modules, 3 data models, and REST blueprints consuming a YOLOv8 inference pipeline feeding a React Native app.
- Authored the project's schema and API documentation plus a pytest suite covering hazard endpoints, and implemented Fernet encryption for sensitive report fields at rest.

Binge — **St. Louis, MO**
Full-Stack Web Application | Software Engineering Class Final Project — ***Feb 2026 – May 2026***
- Designed and owned the PostgreSQL database schema and all API endpoints using Supabase; built and maintained 13+ REST endpoints across authentication, recommendations, and data persistence.
- Built a daily GitHub Actions pipeline seeding 130+ recipes from Spoonacular API into the database, eliminating per-request API calls and managing quota across cuisine rotation
- Implemented Google OAuth and email authentication via Supabase Auth; developed frequency-weighted recommendation algorithm with wildcard scoring to balance personalization with discovery

Experience

SkyInsights — **Tbilisi, Georgia**
Co-Founder / Developer — ***Jan 2025 – Present***
- Designed and launched a working prototype of an AI-powered insights platform to assist aspiring founders.
- Acquired and onboarded 30+ early testers, validating interest and driving initial product adoption.
- Led a 3-person full-stack development team, collaborating across backend, frontend, and deployment.

Undergraduate Research Assistant — **St. Louis, MO**
Networking Lab Saint Louis University | Supervisor: Prof. Flavio Esposito — ***May 2026 - Present***
- Conducting a survey on eBPF for programmable networking, analyzing 90+ academic papers across congestion control, telemetry, load balancing, and in-network computing
- Identifying architectural gaps in existing eBPF-based systems and evaluating feasibility of novel contributions in commodity hardware environments
- Deployed an end-to-end 5G standalone testbed with OpenAirInterface (gNB, UE, and 5G core) over two USRP B210 software-defined radios, building UHD and OAI from source and achieving UE-to-core connectivity.

Georgian Water and Power (GWP) — **Tbilisi, Georgia**
Software / IT Intern — ***Jun 2025 – Jul 2025***
- Aided in backend development for admin systems using Angular and dotenv for environment management.
- Supported database integration and data syncing across ERP modules for smoother enterprise operations.

Skills

Programming Languages:	Python, C++, JavaScript, HTML, CSS, Lua
Frontend:	React.js, TailwindCSS
Backend:	Node.js, Express, Flask, RESTful APIs
ML & Computer Vision:	scikit-learn, MediaPipe, OpenCV, CuPy, NumPy, Pandas
Tools & Technologies:	Git, GitHub, Docker, Linux CLI, Bash, Postman, Vite
Database & Data Handling:	Supabase, PostgreSQL, SQL
Languages:	Georgian (Native), English (C2), Russian (Beginner)