Aleksa Vucak

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Education

University of Windsor Sep 2023 – Apr 2027
Bachelor of Science (Honours) - BS, Computer Science with Software Engineering Co-op *Windsor, ON*
- Minor in Mathematics/Statistics

Experience

Undergraduate Teaching Assistant Sep 2025 – Present
University of Windsor *Windsor, ON (Hybrid)*
- Lead a **33**-student weekly System Programming lab, teaching C and Unix fundamentals and guiding debugging of processes, pipes, sockets, file I/O, and memory management through structured live demonstrations
- Graded all labs, assignments, and exams with consistent rubric-based feedback, returning marks within **72** hours

Machine Learning Engineer Co-op Apr 2025 – Aug 2025
Stellantis *Windsor, ON (On-site)*
- Built a battery fault detection system that windows BMS logs, extracts voltage sag, SOC, and thermal features, and applies supervised/unsupervised learning to raise precision at target recall by **21%** on tested cells and packs
- Added SOC aware calibration with validation driven threshold policies from PR analyses, reducing false positive alerts by **32%** while preserving recall and preventing leakage through validation and test splits
- Automated experiment tracking and generated engineer ready reports with window timelines, feature drivers, and risk band summaries, cutting triage time per log by **60%** and ensuring reproducible results for integration

Software Engineer Intern Sep 2024 – Dec 2024
Glendor, Inc *Draper, UT (Remote)*
- Applied blur application and detection algorithms to process more than **2000** medical images and video frames, achieving **92%** accuracy in identifying sensitive regions while preserving clinical context
- Automated results generation and storage with Python scripts that add metadata, rename outputs, and file assets into structured folders, reducing manual intervention by **99%** and creating a consistent audit trail for review
- Partnered with a team of **7** to deploy AI pipelines with real-time inference in existing healthcare workflows

Projects

Zajedno | *TypeScript, React Native, NestJS, GraphQL, Prisma, PostgreSQL, Socket.IO, Mapbox, Git*
- Designing a cross-platform mobile app for the Serbian community in **24** major North American cities that enables event discovery with carpool coordination, photo posts, match results/highlights, and chatrooms by event/city
- Creating an interactive map for discovering **500+** Serbian-owned POIs by search, filters, and verified reviews

Invoisa | *TypeScript, Python, SQL, React, FastAPI, Tailwind CSS, Redis, Celery, Stripe SDK, Docker, Git*
- Designed and built a full-stack AR collections platform featuring a risk-scored invoice queue, template-based email follow-ups, promises-to-pay tracking, and clear recovery and aging analytics for customers and invoices
- Implemented multi-tenant RBAC with data isolation, CSV import/export with saved mappings, signed Stripe webhooks with idempotency and retries, background workers for dunning workflows, and an append-only audit log

ShapeShifters | *Java3D, TCP Sockets, Swing, AWT, Vecmath, Blender, Agile (Scrum), Git*
- Built a 3D multiplayer maze game with real-time networking, synchronizing up to **8** players and **24** NPCs with round-trip latency near **80ms** via custom TCP communication between client-server architectures
- Integrated core gameplay features including collision detection, scene graph-based maze rendering, audio-visual feedback, and dynamic treasure collection using object-oriented design principles sustaining **60FPS**

Privasee | *Python, OpenCV, NumPy, Pandas, scikit-learn, Git*
- Developed an AI system utilizing open-source algorithms to detect and blur sensitive content in medical images/videos, automating privacy protection and supporting healthcare PHI compliance
- Applied advanced computer vision techniques to improve accuracy and efficiency of sensitive object detection

Technical Skills

Languages: Python, Java, TypeScript, SQL, C, C++ (CUDA), Go, R, HTML/CSS
Frameworks: React, FastAPI, Node.js, NestJS, React Native, TensorFlow, Tailwind CSS, Swing/AWT
Libraries: scikit-learn, OpenCV, NumPy, Pandas, Prisma, GraphQL, Socket.IO, Redis, PostgreSQL, Celery, Stripe SDK
Developer Tools: Docker, Git, Jupyter Notebooks, VS Code, IntelliJ IDEA, MATLAB, Eclipse, Agile (Scrum), Blender