Vasil Topalovic

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EDUCATION

University of Ottawa   Ottawa, ON
Co-op Honours Bachelor of Computer Science — 3rd year   *Expected 2026*
Relevant Coursework: Data Structures and Algorithms, Advanced Programming Concepts with C++, Computer Architecture

EXPERIENCE

Software Engineer   January 2025 – April 2025
General Dynamics Mission Systems   *Ottawa, ON*
- Developed a 3D audio visualization tool using C++ and QT to process and display acoustic data received from sonobuoys, improving target identification by 20% compared to existing 2D techniques.
- Optimized the performance of the graph renderer, reducing latency by 30% and improving responsiveness.

Software Engineer (Freelance)   Sep. 2024 – January 2025
IgNITE Medical Case Competition   *Ottawa, ON*
- Designed and deployed a streamlined meeting booking system for competitors and event organizers, reducing the administrative workload by 10 hours/week, using SvelteKit for the frontend and a Rust RESTful backend.
- Integrated a secure payment system using Stripe, which enabled seamless transactions with 100% reliability.

Data Engineer   May 2024 – December 2024
Canada Border Services Agency   *Ottawa, ON*
- Implemented, tested, and deployed a pipeline that ingests data from AWS S3 Buckets to Azure Storage Containers in Azure Data Factory, reducing storage costs by 10%.
- Performed and maintained data quality checks and validation procedures, identifying and resolving discrepancies in 5% of records, ensuring database accuracy.

PROJECTS

Online Multiplayer Video Game | *Rust, PostgreSQL, Python*
- Created and released a leaderboard and a record submission system, reaching a peak of 50+ concurrent players.
- Enhanced game security by implementing Steam account verification and a robust video replay system using the Protobuf format, reducing unauthorized behavior by 100%.

Compiler | *C++, LLVM, GitHub Actions*
- Developed a statically typed, compiled programming language using C++ and LLVM.
- Engineered a recursive descent parser capable of processing common language constructs such as arrays, structs, pointers, and arithmetic/boolean expressions at 100,000+ lines per second.
- Automated releases of standard library code using GitHub Actions, reducing manual workload by 100%.

Collaborative Document Editor | *SvelteKit, TypeScript, PostgreSQL, PubSub+*
- Engineered an online real-time collaborative document editor by leveraging SvelteKit and TypeScript.
- Developed voice chat using the Solace PubSub+ Event Broker, supporting 1,000+ simultaneous connections.
- Integrated multi-modal AI transcriptions and image captioning, improving accessibility for hearing/visually impaired users.

ACHIEVEMENTS

- 1st place HackTheHill Ciena challenge.
- 1st place uOttaHack Solace challenge.
- 1st place NASA Space Apps challenge.

TECHNICAL SKILLS

Languages: C/C++, Rust, JavaScript/TypeScript, Java, Kotlin, Python, SQL, HTML/CSS, Go, C#, Bash
Frameworks: React, SvelteKit, Angular, Node.js, Spring, Tailwind, Qt
Developer Tools: Git, Docker, Linux, AWS, Azure, PostgreSQL, MongoDB, Firebase, Jira, GitLab, GitHub