

Samuel Dovbenyuk

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EDUCATION

McMaster University

Expected May 2028

BASc. in Computer Science | GPA: 3.70/4.00

Hamilton, ON

- **Relevant Courses:** Data Structures and Algorithms, Database Systems, Concurrent Programming, Computer Architecture

PROJECTS

Tremor | Python, PostgreSQL, REST APIs, pytest

July 2026

- Instrumented a 4-stage ETL pipeline polling live Polymarket prices every 20 seconds via a batched call to the CLOB API
- Flagged anomalous price moves via a 10-tick rolling z-score at a 2.75 threshold across 10 actively tracked Polymarket markets
- Persisted every tick to an indexed Postgres table, powering a batch report of precision/recall against manually labeled events
- Validated the pipeline with an 18-test pytest suite across 5 files, keeping every threshold config-driven with zero hardcoding

Harmonic | React, TypeScript, FastAPI, LibROSA, Madmom

May 2026

- Built a chord-detection pipeline hitting 80% root accuracy by quantizing DeepChroma activations against detected beats
- Extracted time-aligned chords from YouTube audio via a LibROSA/Madmom pipeline detecting key, tempo, and beats
- Scaled long-running jobs with an async queue exposing submit, poll, and cancel routes across FastAPI and a React 19 UI
- Deployed to a Hetzner VPS via Docker Compose, a Caddy proxy, and GitHub Actions CI/CD with a 7-suite pytest harness

ProfTalk | Python, FastAPI, ChromaDB, Anthropic API, React

June 2026

- Shipped a RAG chatbot hitting 0.97 recall@20 on a 38-query golden set via mpnet embeddings reranked by a cross-encoder
- Classified support queries across 5 intents at 90% accuracy with Claude Sonnet, routing each to a dedicated retrieval handler
- Curbed hallucinations on sarcastic reviews by injecting RateMyProfessors rating headers into mpnet-embedded context
- Automated a 5-stage ingestion pipeline (scrape, fetch, normalize, ingest, embed) feeding a FastAPI API and React frontend

Pine R-V Language Compiler | Rust, Compiler Design, RISC-V Assembly

October 2025

- Programmed a Rust compiler targeting RISC-V assembly, converting over 1000 lines of source code via a robust Pratt parser
- Architected 3-stage transformation pipelines to automatically guarantee 100% type-safe compilation with full AST inference
- Implemented custom register allocation across 7 RISC-V temporary registers with stack spilling on a 512-byte stack frame
- Accelerated debugging by dumping lexer tokens and typed AST via a 5-flag CLI, exposing all 3 compiler pipeline stages

QuickSnap | Swift, Python, FastAPI, Cloudflare R2, SQLite

June 2026

- Engineered a macOS menu-bar screenshot tool via Swift and FastAPI uploading captures to Cloudflare R2 in 1 keystroke
- Hardened the backend API with HMAC-signed tokens, 60 req/min rate limits, and master-key-managed hashed API keys

LEADERSHIP/EXPERIENCE

Teaching Assistant

January 2026 – May 2026

McMaster University

Hamilton, ON

- Graded 400+ JS, SQL, and PHP submissions across 6 grading cycles for 70+ students, applying 10-point structured rubrics
- Wrote per-line code review comments justifying every mark deduction to turn grading into actionable student feedback
- Applied structured grading rubrics consistently across every submission batch to ensure fairness and full reproducibility

Cyber Society Member

September 2025 – May 2026

McMaster University

Hamilton, ON

- Trained actively alongside Cyber Society CTF teams; one club team placed 2nd in Toronto at the CyberSci national qualifier
- Developed security expertise across 3 distinct domains (web exploitation, crypto, forensics) via Burp Suite and Wireshark
- Enhanced technical skills by completing 20+ weekly security workshops covering web exploitation and reverse engineering

Rotisserie Clerk

July 2022 – September 2024

Fortinos

Hamilton, ON

- Maintained 100% food safety compliance and met daily production deadlines, independently training 5+ new team hires

TECHNICAL SKILLS

Languages & Frameworks: Python, TypeScript, JavaScript, Rust, React.js, FastAPI, HTML/CSS

Databases & Data: PostgreSQL, SQLite, ChromaDB

DevOps & Tools: Git, Linux, Docker, CI/CD, GitHub Actions, Caddy, pytest

APIs & Services: Anthropic API, Cloudflare R2, Polymarket CLOB API