Nic Bolton

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EDUCATION

Master of Science in Applied Computing | University of Toronto, Toronto, ON Sep 2025 – Dec 2026
- *Relevant coursework:* applications of parallel and distributed computing, high performance scientific computing, stochastic models in investments, vector databases

Bachelor of Science in Physics and Computer Science | University of Windsor, Windsor, ON Sep 2020 – Apr 2025

PROFESSIONAL & RESEARCH EXPERIENCE

Software Developer | Case FMS, Lakeshore, ON May 2023 – Present
- Designed and implemented full-stack web application to streamline the procurement of service partners for domestic client contracts, integrating a machine learning model for cost prediction using .NET, PostgreSQL, Python, N8N
- Created multiple interactive dashboards for account managers to track and communicate with service partners, saving over $300,000 in licensing costs and removing dependencies on Salesforce
- Optimized PostgreSQL queries for client portal resulting in 40% improvement of render time

Research Assistant | University of Windsor, Windsor, ON May 2024 – Aug 2024
- Created numerical quantum mechanics simulation in Python to model High Harmonic Generation and electron dynamics in periodic potentials
- Implemented various algorithms to generate synthetic datasets and solve the Time-Dependent Schrödinger Equation using SciPy, NumPy, and Numba

Java/C++ Programmer | Wayne State University, Detroit, MI May 2022 – May 2024
- Developed an ImageJ plugin in Java and C++ to quantify magnetic moments of small spherical MRI objects
- Built responsive GUI enabling users to load MRI images and visualize computed magnetic-moment parameters through a structured multi-step workflow
- Implemented and optimized C++ numerical routines for 3D array interpolation, phase background removal, and magnetic-moment estimation, significantly improving computational performance

PROJECTS

Bolton Cup Hockey Tournament boltoncup.ca
- Engineered a .NET ecosystem with real-time interactivity using SignalR, supporting 100+ players and live tournament operations ranging from team drafts to on-ice scoring and stat updates
- Built a comprehensive tournament management platform featuring an interactive draft interface, scoresheet app, and public website for player stats and schedules — each integrated through a shared backend system
- Delivered a polished and scalable user experience with MudBlazor, deployments with Docker, and custom authentication, helping the annual Bolton Cup reach 100K+ social media users, secure sponsorships, and award $1000+ in prizes while automating the bulk of the event workflow

Emergency Dispatch Simulator nicbolton.ca?project=eds
- Developed a web-based training platform for 911 operators with real-time, two-way voice conversations with AI callers using Boson AI's Higgs Audio V2 models for speech generation and comprehension
- Designed frontend and backend integration through WebSocket streaming, featuring dynamic scenario generation and automated performance analysis via transcriptions
- Constructed entire app for a hackathon with three other team members over one weekend, placing top 6 out of 80+ teams

TECHNICAL SKILLS

- **Languages:** C, C++, C#, Java, JavaScript, Python, SQL
- **Frameworks/Libraries:** .NET, FastAPI, Flask, Matplotlib, NumPy, OpenAI API, Pandas, Scikit-learn, SciPy
- **Technologies:** Azure, Docker, Git, Hugging Face, N8N, Nginx, Ollama, PostgreSQL, Postman, Visual Studio