

# Nic Bolton

131 Grant Avenue, Windsor, ON N8N 2X7 | bolton21@uwindsor.ca | (519) 817-6511 | bolst.github.io

## EDUCATION

**Master of Science in Applied Computing** University of Toronto, Toronto, ON Sep 2025 – Dec 2026  
**Bachelor of Science in Physics and Computer Science** University of Windsor, Windsor, ON Sep 2020 – Apr 2025

## RESEARCH EXPERIENCE

**Research Assistant** | Wayne State University, Detroit, MI May 2022 – Dec 2024

- Developed program CISSCO with Java and C++ to quantify magnetic moments of microbleeds, supervised by Dr. Yu-Chung Cheng
- Implemented various algorithms to calculate quantities such as field distributions, microbleed volume, and noise

**Research Assistant** | University of Windsor, Windsor, ON May 2024 – Aug 2024

- Explored theoretical High-Harmonic Generation in crystals using computational modelling and numerical methods, supervised by Dr. Jeff Rau and Dr. Chitra Rangan
- Generated datasets based on physical models and computationally solved the time-dependent Schrödinger equation using Python in Jupyter Notebooks

**Research Assistant** | University of Windsor, Windsor, ON Dec 2022 – Apr 2024

- Contributed to Python code employing Principal Component Analysis and Neural Networks to identify elements from bacterial spectra, supervised by Dr. Steven Rehse
- Achieved an 83% reduction in program runtime through data preprocessing optimization

## PROFESSIONAL EXPERIENCE

**Software Developer** | LFX Property Management, Lakeshore, ON May 2023 – Present

- Engineered and launched a custom, full-stack CRM application to replace Salesforce, saving the company \$250,000+ in annual licensing fees and providing greater flexibility for business processes.
- Optimized PostgreSQL queries resulting in 40% improvement of page load time in production .NET application
- Maintained and contributed to full-stack applications built with .NET Framework and PostgreSQL

**Teaching Assistant** | University of Windsor, Windsor, ON Sep 2022 – Dec 2024

- Instructed and graded weekly labs (Introductory Physics I/II)
- Assisted students with assignments and learning C++ techniques (Advanced Object Oriented System Design Using C++)

**Freelance Web Development** | Self-employed, Windsor, ON Sep 2023 – Aug 2024

- Constructed various web sites and applications for local companies
- Collaborated directly with company representatives to identify design requirements

## PROJECTS

**Bolton Cup** boltoncup.ca

- Organized hockey tournament with 90+ players and multiple sponsorships, reaching over 100k users on social media
- Built web app for streamlining player registrations along with viewing live draft, game results, and player statistics
- Created desktop application for scorekeepers to push game events in real-time to Postgres database
- Tools: C#, .NET, Postgres, Stripe

## Exo Explorer

[bolst.github.io/ExoExplorer](https://bolst.github.io/ExoExplorer)

- Web application to visualize characterizable exoplanets found in the NASA Exoplanet Archive
- Project constructed over two days for the NASA Space Apps Challenge, placed third out of fifteen teams
- Tools: Three.js, Python, Bootstrap

## Classical Simulation of a Quantum Algorithm for Breaking the Factoring Problem

- Developing capstone project involving quantum computing and cryptography, supervised by Dr. Shaoquan Jiang
- Project involves a classical implementation of Shor's algorithm to demonstrate how it can break cryptosystems such as RSA and ElGamal

## POSTERS

- Rehse S et al., **Bolton N**, (Rehse Lab). *Detection of Bacteria in Blood using Laser-Induced Breakdown Spectroscopy*. 2024 CAP Congress, Western University, London, ON. May 2024
- Rehse S et al., **Bolton N**, (Rehse Lab). *Diagnosing Bacterial Urinary Tract Infections Using Laser-Induced Breakdown Spectroscopy*. 2024 CAP Congress, Western University, London, ON. May 2024
- Rehse S et al., **Bolton N**, (Rehse Lab). *Toward the development of a rapid diagnostic test for bacterial meningitis using laser-induced breakdown spectroscopy*. 2024 CAP Congress, Western University, London, ON. May 2024

## TECHNICAL SKILLS

- **Programming Languages:** C, C++, C#, Java, Python, SQL
- **Frameworks/Libraries:** .NET, Flask, Matplotlib, Numba, NumPy, Pandas, SciPy
- **Technologies:** Azure, Docker, Excel, Git, Jupyter, N8N, PostgreSQL, Postman, Supabase, Visual Studio

## EXTRACURRICULARS

### Lakeshore Canadiens Jr. C Hockey Team

Nov 2022 - May 2024

- Committed approximately 25 hours per week to practices, games, and travel while maintaining full course load
- 2024 Schmalz Cup champions