

Alexandre Boutot

+1 (506) 588-2493
alexandreboutot@icloud.com

github.com/TDC28
linkedin.com/in/alexandreboutot

Professional Skills

Languages: Python, MATLAB, TypeScript, JavaScript, VBA, Lua, Racket
Technologies/Frameworks: NumPy, SciPy, SymPy, Qiskit, D-Wave Ocean, PennyLane, Pandas
Developer Tools: Neovim, Jupyter, MacOS (UNIX), Git, Github, Raspberry Pi
Soft skills: Problem solving, Teamwork, Adaptability, Communication

Education

- University of Waterloo** 2023 - 2028
Honours BSc in Mathematical Physics, Computing Minor CGPA: 90%

Experience

- Research Assistant** January - May 2025
Institute for Quantum Computing Waterloo, ON
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- Senior Coordinator** May - September 2024
Shediac Tennis Club Shediac, NB
 - Supervised employees at the Shediac Tennis Club, maintained strong employee relationships.
 - Built Python tools to automate employee tasks.
 - Helped scale the nonprofit organization by **100+ members** by working on the club's new website.
- Physics and Mathematics Tutor** January - June 2023
École Polyvalente Louis-J.-Robichaud Shediac, NB
 - Developed **customized lesson plans** to meet individual student needs.
 - Evaluated student progress and provided feedback to help them achieve academic goals.
 - Improved average academic performance in mathematics and physics of students by **20%**.

Projects

- Qalendar** | D-Wave Ocean, Python, React, TypeScript
An optimized calendar generator using quantum annealing.
 - Engineered Python classes to manage a **quadratic unconstrained binary optimization problem** for the calendar.
 - Designed methods for adding events and specifying preferences, enabling optimized calendar generation.
 - Used **data processing** to generate user-friendly calendar outputs, elevating the **user experience** and functionality.
- QuViz** | Matplotlib, Python, Qiskit, Tkinter
Neutral atom quantum computer compilation visualization tool.
 - Engineered a visualization platform that allows users to input quantum circuits via a GUI or QASM code.
 - Visualized **quantum circuits** on a neutral atom quantum computer, demonstrating **atom transport**.
 - Presented QuViz** to researchers, showcasing its applications in neutral atom quantum computing and promoting collaborative discussions on its applications.
- COCSheetBot** | MS Excel, OpenPyXL, Python, VBA
Discord bot that uses Clash of Clans API to rank players in a clan via spreadsheets.
 - Created spreadsheet template with **50,000+** formulas to automate player rankings and streamline data analysis.
 - Engineered a bot to dynamically generate complex spreadsheets using real-time API data, reducing errors by **15%**.
 - Improved overall productivity by **65%** by automating manual data processing tasks.

Achievements

- Qiskit Global Summer School 2024** Quantum Excellence 2024
- QRISE 2024 QuEra challenge** Winning project (QuViz) 2024
- MIT iQuHack 2024** IonQ online challenge 5th place 2024
- IBM Quantum Explorer 2023** Advanced certificate 2023