William Caron-Bastarache

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EDUCATION

Université de Montréal — Montréal, QC
B.Sc. in Computer Science (Expected 2027) — *2024 – Present*
- Relevant coursework: Software Engineering, Algorithms & Data Structures, Theory of Computation, Probability & Statistics, Economics

Cégep Édouard-Montpetit — Longueuil, QC
College Diploma (Pre-University) Business Administration with Mathematics — *2021 – 2024*

École internationale Lucille-Teasdale — Brossard, QC
High School Diploma — *2016 – 2021*

TECHNICAL SKILLS

Programming: Java, Python, Bash, HTML/CSS
Familiar with: SQL, C, NumPy, Pandas, scikit-learn, JavaScript/TypeScript (React, Next.js)
Tools: Git, GitHub, GitHub Actions, Linux, Power BI, Docker, Maven, IntelliJ, VS Code, LaTeX
Languages: French (native), English (fluent), Spanish (basic)

PROJECTS

Event-Driven Market Probability Engine (In Progress) — 2026
- Quantitative research platform using PostgreSQL, Python (NumPy, Pandas), dbt, and Power BI.
- Engineering statistical features (returns, rolling volatility, momentum) from historical market data.
- Developping a probabilistic classification model to estimate next-day market direction.
- Building reproducible SQL transformations and validation tests using dbt.
- Designing dashboards to evaluate signal quality and backtest strategy performance.

MaVille | *Java, Maven, REST, CLI App* — 2025
- Developed a municipal management system with persistence, user profiles, notifications, and API integration.
- Implemented resident/contractor features and data persistence (CSV/JSON).
- Added automated testing with JUnit.

Software Testing & CI Quality Gate (GraphHopper) | *Java, JUnit, JaCoCo, PIT, GitHub Actions* — 2025
- Designed and implemented targeted unit tests on core utility classes to improve code robustness.
- Measured test coverage before/after using JaCoCo and evaluated fault detection with mutation testing (PIT).
- Built a CI quality gate in GitHub Actions that fails builds on mutation score regression using a persisted baseline.
- Automated CI reporting with persisted baselines to prevent quality regressions across builds.

EXPERIENCE

Lifeguard — 2022 – Present
City of Brossard — *Brossard, QC*
- Ensured safety and responded to emergencies in high-traffic pools.
- Developed teamwork, communication, and crisis management skills.

Nightshift Receptionist — 2024
Hotel Labelle — *Montréal, QC*
- Managed front-desk operations during night shifts, ensuring safety and service continuity.
- Strengthened organizational and communication skills in a high-responsibility role.

INTERESTS

Artificial Intelligence, Statistics, Finance, Software Development, Open-source software, Fitness