

# William Caron-Bastarache

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## EDUCATION

### Université de Montréal

*B.Sc. in Computer Science (Expected 2027)*

Montréal, QC

2024 – Present

- Relevant coursework: Software Engineering, Algorithms & Data Structures, Theory of Computation, Probability & Statistics, Economics

### Cégep Édouard-Montpetit

*College Diploma (Pre-University) Business Administration with Mathematics*

Longueuil, QC

2021 – 2024

### École internationale Lucille-Teasdale

*High School Diploma*

Brossard, QC

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, Linux, Power BI, Docker, Maven, IntelliJ, VS Code, LaTeX

**Testing & Quality:** JUnit, JaCoCo, PIT, CI/CD (GitHub Actions)

**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.
- Developing 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

*City of Brossard*

2022 – Present

Brossard, QC

- Ensured safety and responded to emergencies in high-traffic pools.
- Developed teamwork, communication, and crisis management skills.

### Nightshift Receptionist

*Hotel Labelle*

2024

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