

Matheus Leca

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Calgary, Alberta

Education

- **M.Sc., Electrical and Computer Engineering, University of Calgary, CAN** Graduated 2026
- **B.Sc., Computer Science, Federal University of Pernambuco, BRA** Graduated 2024

Work History

Software Engineer, University of Calgary, CAN

Apr 2025 – Aug 2026

- Led the development of a cross-platform safety-training simulator using **Unity 6, C#, HTML, CSS, and JavaScript** to train employees to identify workplace hazards through immersive 3D and 360° scenarios across web, mobile, desktop, and Meta Quest VR.
- Built an online training backend using **.NET, EF Core, and PostgreSQL** to manage training level creation and availability, sharing, leaderboards, and employee submissions with **Clean Architecture**.
- Automated deployments, database migrations, and testing using **Git, GitHub, GitHub Actions, Docker, and DigitalOcean**, applying **Test-Driven Development** to support reliable delivery.
- Engineered a custom **Unity WebGL asset pipeline** with automated asset splitting, parallel downloads, and client-side reassembly to overcome the 100 MB hosting limit and enable deployment of the full simulator.

Software Engineer, LogAp I.T. Solutions, BRA

Feb 2023 – Aug 2024

- Led the development of an enterprise application using **Java, Spring Boot, microservices, Angular, and Kafka** to manage inventory and predict repositioning needs, streamlining government workflows and reducing operational costs while collaborating with stakeholders to refine requirements and deliver requested features.
- Digitized electricity-service operations using **Ionic, REST APIs, RabbitMQ, and AWS** to monitor service availability and requests and automate asynchronous data exchange, improving operational efficiency and supporting revenue growth.
- Developed and optimized a flood-monitoring application using **C#, .NET, HTML, CSS, and JavaScript** to collect real-time water-level data and support emergency-service responses.
- Improved application maintainability by applying **SOLID principles** and supported reliable delivery using **Git, GitHub, and GitHub Actions** for automated CI/CD and testing across **Linux and Unix** environments throughout the **Software Development Life Cycle (SDLC)**, following **Agile/Scrum** practices and conducting code reviews.

Software Engineer, Reciprev, BRA

Oct 2021 – Feb 2023

- Developed **React, Vue, jQuery, HTML, CSS, and JavaScript** workflows to digitize and streamline social-security accounting processes, reducing software costs by collaborating with stakeholders to refine functional and non-functional requirements.
- Enabled reliable cloud deployment using **Node.js, Express, MongoDB, and AWS**, supporting scalable application hosting, backend services, and persistent application data.
- Improved software reliability using **Git, GitLab, Test-Driven Development, Agile/Scrum** and code reviews throughout the SDLC, supporting consistent and reliable feature delivery.

Teaching Assistant, University of Calgary, CAN

Sep 2024 – Apr 2026

- Improved students' understanding of software architecture and design patterns using **Java, Spring, Spring Boot, HTML, CSS, and JavaScript** through lectures and practical instruction on microservices and modular monoliths.
- Strengthened students' **object-oriented programming and data structures** skills using **Python, MySQL, and MongoDB** by providing individualized guidance and feedback on labs, assignments, and projects.
- Supported **programming, databases, software design, architecture, and web development** instruction across six undergraduate and graduate courses, helping students develop practical skills in these areas.

Teaching Assistant, Federal University of Pernambuco, BRA

Jul 2022 – Mar 2024

- Enhanced undergraduate learning using **JavaScript, TypeScript, Node.js, and OpenAI Assistants API** to develop an AI tutoring application integrated with Discord, providing accessible, on-demand academic support.
- Strengthened students' understanding of **Theoretical Foundations of Computer Science** through individualized explanations, feedback, and academic guidance.
- Improved learning and assessment by delivering lectures, creating and grading coursework, and holding weekly office hours to explain technical concepts in plain language and provide individualized support.

Projects

VeriFin, Personal Web Application

2026

- Developed a full-stack personal finance platform using **Java, Spring Boot, React, TypeScript, Tailwind CSS, and PostgreSQL** to help users organize budgets, track expenses, set financial goals, and monitor investments in one application.

ThriveTree, Personal iOS Project

2026

- Developed a **Swift and SwiftUI** iOS app that gamifies habit building through a virtual tree, using animations, reminders, health states, and progress tracking to encourage consistent daily habits.

Publications

- *FairPath: A Human-in-the-Loop Framework for Adversarial Fairness Testing in Machine Learning Pipelines*. Master's Thesis, 2026.
- *A Systematic Review of Bias Detection and Dataset Improvement Methods for Fair AI Systems*. FSE (HumanAISE '26), 2026.
- *Empathy in Software Engineering Education: Evidence, Practices, and Opportunities*. ICSE (CHASE '26), 2026.
- *Software Fairness Testing in Practice*. ICSME '25, 2025.
- *Curious, Critical Thinker, Empathetic, and Ethically Responsible: Essential Soft Skills for Data Scientists in Software Engineering*. ICSE (SEIS '25), 2025.
- *Towards User-Focused Cross-Domain Testing: Disentangling Accessibility, Usability, and Fairness*. SANER (SQA4AI '25), 2025.
- *Responsible AI in the Software Industry: A Practitioner-Centered Perspective*. ICSE (RAIE '25), 2025.
- *Applications and Implications of Large Language Models in Qualitative Analysis: A New Frontier for Empirical Software Engineering*. ICSE (WSESE '25), 2025.
- *Development and Evaluation of an Artificial Intelligence-Based Chatbot as a Learning Support Tool*. Bachelor's Thesis, 2023.