Henri Cerio-Cain

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EDUCATION

Dalhousie University   *Halifax*, *NS*
Bachelor of Computer Science   Expected Sep 2026
> Relevant Coursework: Data Structures, Software Engineering, Operating Systems and Algorithms.
> Member, Dalhousie Computer Science Society.

SKILLS

- **Languages & Frameworks:** TypeScript, JavaScript, React Native, Python, Java, C, HTML/CSS, SQL, PyTorch, Hugging Face Transformers, FastAPI.
- **Tools & Platforms:** Firebase, Git, GitLab CI/CD, Android Studio, Google Colab, Cloudflare, Uvicorn, Quantization (BitsAndBytes).
- **Practices:** Test-Driven Development (TDD), Domain-Driven Design (DDD), Clean Architecture, CI/CD, Model Fine-Tuning (LoRA/QLoRA), GPU Optimization (FP16/TF32, mixed precision).

UNIVERSITY PROJECTS

Domyn (Expected Release: Oct 2025)
Founder and Developer   Jul 2025
- Independently developing a full-stack React Native fitness tracking app, handling all aspects including UI/UX design, frontend development, backend architecture, and Firebase integration for real-time data synchronization and user authentication.
- Building a real-time workout tracking system with complex multi-level state synchronization between local and Firebase, implementing live timers, optimistic UI updates, and hierarchical data reconciliation for seamless user experience during active workouts.
- Architected a constant management system eliminating all hardcoded strings across 50+ components, ensuring type-safe Firebase operations and production-validated extensibility patterns for scalable development.

Dal Tutor
Software Engineering, Dalhousie University   Apr 2025
- Developed an Android tutoring marketplace application using Java, Firebase, and Google Maps API that connected students with tutors through an integrated location-based search system in a group of five.
- Implemented complete authentication workflow with role-based access (student/tutor), integrated PayPal payment processing for tutorial bookings with transaction history tracking.
- Applied Test-Driven Development with JUnit, Espresso and UI Automator while maintaining CI/CD pipeline through GitLab, ensuring over 80% test coverage.

HenriAI
Personal Project   Dec 2024
- Fine-tuned a 6B parameter GPT-J model using LoRA adapters and 4-bit quantization (QLoRA) on a single A100 GPU, reducing memory usage by ~75% while adapting the model to personal datasets.
- Built a custom PyTorch training pipeline with Hugging Face Transformers, incorporating dataset preprocessing, gradient checkpointing, AdamW optimization, and cosine learning rate scheduling to enable efficient large-scale model training.
- Deployed the model to a live website by engineering a FastAPI inference server with Uvicorn and Cloudflare tunnelling, exposing REST endpoints with authentication and CORS controls for real-time text generation.

ADDITIONAL

Languages: Fluent in French and English with intermediate proficiency in Cebuano.
Certifications & Training:
- New-Brunswick Certificate of Oral Proficiency French as a Second Language: Advanced**.**