Henri Aïdasso

Research Scientist | Artificial Intelligence and Software Engineering
Ph.D. Researcher @ École de technologie supérieure (ÉTS)
Montréal, Quebec, Canada

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Languages

French: Native Language | **English:** Professional working proficiency | **Fon:** Native Language

Research Interests

Machine Learning, Deep Learning, Natural Language Processing, Model Optimization, AI Safety and Reliability, Agentic Systems, AI for Software Engineering, Distributed ML Systems, Digital Twins.

Education

PhD in Computer Engineering — 2022 — March 2026
Dept. of Software and IT Engineering, École de technologie supérieure (ÉTS) — Montreal, Canada
Thesis: Intelligent Automation for Reliable Software Delivery
GPA: 4.3/4.3

M.Sc. in Big Data: Analytics and Machine Learning — 2020 — 2022
Faculty of Computer Sc. and Electronics, University of Rennes 1 — Rennes, France
Grade: Valedictorian, "*Mention Très Bien*"

B.Sc. in Computer Science — 2019 — 2020
Faculty of Computer Sc. and Electronics, University of Rennes 1 — Rennes, France
Grade: Valedictorian, "*Mention Très Bien*"

B.Sc. in Computer Science and Management — 2014 — 2017
Dept. of Computer Sc. and Management, University of Abomey-Calavi (UAC) — Cotonou, Benin
Grade: Valedictorian, "*Mention Bien*"

Experiences

Research and Development Scientist — Aug 2025 — Apr 2026
Computer Research Institute of Montreal (CRIM) • Part-time contract — Montreal, Canada

Developing an intelligent NLP copilot with custom RAG pipelines enabling context-aware natural language assistance for complex 3D modeling workflows (Blender). Operationalized U-Net models trained on multi-GPU clusters for high-resolution weather forecasting, optimizing inference pipelines via model quantization and algorithmic improvement to achieve 30% reduction in latency. Contributed to open-source geospatial data standardization (STAC Populator on GitHub) improving data quality and accessibility for ML pipelines.

Applied Research Scientist — May 2023 — Dec 2025
TELUS • Mitacs Accelerate Fellowship — Montreal, Canada

Defined and led research on efficient AI-powered automation to improve software delivery pipeline reliability, achieving up to 25% reduction in machine costs and improving developer productivity. Designed and optimized large-scale experiments involving training and evaluating 45,000 ML models for automated anomaly detection on distributed GPU clusters, achieving up to 88% average F1-score with minimal labeled data (12 shots). Built a production-grade AI agent framework for automated failure diagnosis, and optimized small language models via quantization achieving 85% model size reduction.

Data Scientist Sep 2020 — Aug 2022
Energiency • Apprenticeship Rennes, France

Improved the energy efficiency of large European Industry 4.0 factories by up to 15% in electricity and gas bill reduction, using machine learning and data science approaches: real-time energy consumption modeling and forecasting, anomaly detection, golden batch analysis, and performance deviation analysis. Developed and maintained the cloud-based backend for ML model deployments at scale, enabling distributed model training and real-time inference workflows for dozens of ML models actively serving end customers. Created several in-house data science libraries to facilitate the reuse of data science tools.

Business Intelligence Developer May 2020 — Aug 2020
Worldline Global • Internship Rennes, France

Developed financial data monitoring tools for *Tap2Use* (the top 1 digital payment solution for transportation in France) including daily statistics on large data volumes across distributed NoSQL databases.

Software Engineer Sep 2016 — Sep 2020
Contracts and Internships Cotonou, Benin

Android and full-stack web developer (consultant/intern) on various projects in healthcare, finance, education, and business management across seven governmental and software organizations: Port Authority of Cotonou, Beninese Electrical Energy Company, RINTIO, JMA Plus, Blolab, Dis-moi Doc, and OpenSI.

Publications

Towards Open-Ended Discovery for Low-Resource NLP
Bonaventure F. P. Dossou*, Henri Aïdasso* (*Equal Contribution)
Proceedings of the 2nd Workshop on Uncertainty-Aware NLP (UncertaiNLP) @ EMNLP 2025. September 2025, pp. 287-297.

Efficient Detection of Intermittent Job Failures Using Few-Shot Learning
Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
Proceedings of the IEEE 41st International Conference on Software Maintenance and Evolution (ICSME). September 2025, pp. 632-643.

Build Optimization: A Systematic Literature Review
Henri Aïdasso, Mohammed Sayagh, Francis Bordeleau
ACM Computing Surveys (CSUR). August 2025, Vol. 58, No. 1, pp. 1-38.

Towards Build Optimization Using Digital Twins
Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
Proceedings of the ACM 21st International Conference on Predictive Models and Data Analytics in Software Engineering (PROMISE). June 2025, pp. 95-98.

On the Diagnosis of Flaky Job Failures: Understanding and Prioritizing Failure Categories
Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
Proceedings of the IEEE/ACM 47th International Conference on Software Engineering: Software Engineering in Practice (ICSE SEIP). May 2025, pp. 192-202.

Predicting Intermittent Job Failure Categories for Diagnosis Using Fine-Tuned Language Models
Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
Submitted January 2026 (under review).

On the Illusion of Success: An Empirical Study of Build Reruns and Silent Failures in Industrial CI
Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
IEEE Transactions on Software Engineering (TSE). Submitted September 2025 (under review).

Do SDN Configuration Changes Get Reviewed Differently? An Empirical Study at TELUS
Samah Kansab, Henri Aïdasso, Francis Bordeleau, Ali Tizghadam
Empirical Software Engineering (EMSE). Submitted July 2025 (under review).

Skills

Applied Research (4+ years): Literature Review, Experimental Design, Hypothesis Testing, Statistical Modeling, Data Analysis and Visualization, Prototype-oriented Research. **Machine Learning** (6+ years): Natural Language Processing, Time Series Modeling, Statistical Learning, Data Mining, Feature Engineering. **Programming**: Python (7 yrs), Java (6 yrs), Node.js (4 yrs), R (2 yrs), Bash (2 yrs), C++ (1 yr). **Software Engineering** (6+ years): Backend Development (APIs, libraries, and packages), AI Agents, Distributed Systems, Design Patterns, Testing. **MLOps**: CI/CD (7 yrs), Containerization (6 yrs), k8s Orchestration (2 yrs). Cloud Services (5 yrs). **Data Systems** (8+ years): Distributed Training, Data Modeling, Big Data Processing. **Mathematics**: Probability, Statistics, Linear Algebra, Mathematical Analysis.

Frameworks: PyTorch (3+ yrs), Transformers, scikit-learn, smolagents, FastAPI, NestJS, Plotly
Database Systems: PostgreSQL, TimescaleDB, MongoDB. **Tools**: R Studio, Docker, Postman, Clouds.

Honors and Awards

Arbour Foundation Doctoral Scholarship 2025
Prestigious and highly selective $30,000 scholarship awarded by the *Arbour Foundation* to outstanding doctoral students in Quebec universities to recognize academic excellence, leadership, and social impact.

Mitacs Accelerate Fellowship 2023 — 2025
Awarded by *Mitacs* in partnership with *TELUS* for doctoral research collaborations between academia and industry to accelerate real-world innovation via paid research internships.

Top of Class — Awarded the Only Highest Honors 2022
Graduated valedictorian of the MSc Class of 2022 with the only "*Mention Très Bien*", the highest academic distinction in the French grading system for achieving an overall grade average above 16/20.

Trophy of Excellency 2017
Awarded by the *Club des Elites of UAC* to the best student in Computer Science applied to Management for outstanding academic performance, after being listed on the Honor Roll as Top (1st) of Class all years of the B.Sc. degree in 2015, 2016, and 2017.

Benin Government Excellence Scholarship 2014 — 2017
Excellence scholarship awarded to top-performing students in the national college-leaving exam, renewed for the three consecutive years of undergraduate study for continued academic performance.

National Mathematics Champion 2014
One of the top four champions in Benin's national mathematics championship, having represented the country at the 2014 International Mathematical Olympiad (IMO) held in Cape Town, South Africa.

Services and Volunteering

Coordinator of graduate studies committees at the ÉTS Students' Association (AÉÉTS) 2025 — Now

Head of Organizing Committee — Annual Congress of ÉTS Student Researchers (CAéc) 2025 — Now

Committee Member — Doctoral Excellence Awards Evaluation Committee at ÉTS Fall 2025

Committee Member — International Graduate Student Welcome Committee at ÉTS Fall 2025

Mentor for intl. undergraduate students in the Contact Program at ÉTS Sum — Fall 2025

Junior Program Committee Member for the ACM/IEEE MSR 2026, Technical Track	2025
Program Committee Member for the IEEE CASCON 2025, Artifacts Track	2025
Reviewer for the UncertaiNLP workshop @EMNLP 2025	2025
Reviewer for the African Computer Vision Summer School (ACVSS)	2024 — 2025
Junior Reviewer for the ACM/IEEE MODELS 2024, Technical Track	2024
Member of Cédille — Scientific club for DevOps experimentation at ÉTS	2023 — Now
Member of SEMTL — Software Engineering Researchers' Community at Montréal	2022 — Now
Vice President of the Student Office in MIAGE at University of Rennes 1 (France)	2020 — 2021
Secretary-General of the Association of Computer Science Students at UAC (Benin)	2017 — 2018
Information Technology Educator for the EduGh project at AIESEC in Legon (Ghana)	Sum 2015