

SALAH-EDDINE BENBRAHIM, PhD, MBA, B.Eng.

Computer Science & Applied AI Educator · Data Science · 10+ Years Industry Practice

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PROFILE

Educator and practitioner in Computer Science, Applied AI, and Data Science, combining a **PhD in Computer Engineering** and university teaching experience with 10+ years building production systems in industry. Comfortable teaching a broad range of undergraduate and professional-master's courses — from programming and databases to machine learning, data analytics, and cloud — and passionate about bringing **real-world, hands-on, industry-grounded practice** into the classroom. Author of an open-source AI-evaluation framework (CineInfini) and two sole-authored papers under review (venues undisclosed pending review), giving students exposure to reproducible, rigorous, current AI practice.

TEACHING & ACADEMIC EXPERIENCE

Lecturer & PhD Researcher — Polytechnique Montréal 2009 – 2016

- Taught MATLAB programming to first-year engineering undergraduates at Polytechnique Montréal.
- Delivered teaching-laboratory sessions for first-year engineering students.
- Taught in a bilingual (French/English) academic environment.

Postdoctoral Research Fellow — Polytechnique Montréal 2017 – 2018

- Conducted and published research.

Teaching approach

- Project-based, competency-driven instruction: courses designed backwards from the skills a graduate must demonstrate, assessed through hands-on labs, code reviews, and reproducible reports.
- Emphasis on reproducibility and intellectual honesty — students learn to scrutinize results, not only produce them — mirroring the rigour expected by employers and graduate programs.
- Attentive to diverse professional cohorts (career-changers, international students, working students): clear scaffolding on the on-ramp, open-ended current-tool projects at the ceiling.

COURSES I CAN TEACH

Machine learning & AI: Introduction to Machine Learning · Foundations of Machine Learning · Artificial Intelligence I · Artificial Neural Networks & Deep Learning · Advanced Machine Learning · Reinforcement Learning · Foundations of Large Language Models · Applied Generative AI · NLP / Computational Linguistics · Unstructured Data.

Ethics, evaluation & responsible AI: Ethics in AI · Trustworthy & Responsible AI · Model Evaluation, Benchmarking & MLOps — areas in which I actively publish.

Data, systems & core CS: Databases I & II / Advanced Databases · Data Science & Data Analytics · Distributed and Parallel Systems · Cloud Computing · Introduction to Programming (Python) · Data Structures & Algorithms · Software Engineering · Image Processing & Pattern Recognition · Optimization / Operations Research.

INDUSTRY & APPLIED EXPERIENCE

Founder & Open-Source AI Research Lead — CineInfini 2023 – Present

- Built an open-source AI-evaluation framework (video / AIGC) with reproducible pipelines (>90% test coverage, DOI-archived) — used as concrete, current teaching material for AI evaluation and reproducibility.

Founder & AI Architect — JokeJoy (Multi-LLM Generative AI SaaS) 2023 – 2025

- Engineered a multi-LLM production system (GPT-4o / Gemini) in production — brings applied Generative AI into the classroom.

Technical Lead & Architect — Government of Quebec 2023 – 2025

- Led architecture for platforms serving 2M+ citizens (99.9% uptime) — real-world systems, data, and cloud engineering experience.

Senior BI Data Analyst — Government of Quebec 2019 – 2020

- Data governance, quality assurance and analytics; mentored a team of 8 analysts.

RESEARCH & PUBLICATIONS

Sole author, **Index terms:** inter-rater reliability; variance components and identifiability; human reference panels; LLM-as-a-judge evaluation; annotation budget allocation; calibrated diagnostics; reporting protocols. — under review (2026).

Sole author, **Index terms:** inter-rater reliability; construction choices in reliability estimation; rater screening and aggregation; panel size; multiverse analysis; reproducibility of published coefficients Reproduction package: doi.org/10.5281/zenodo.22698801. — under review (2026).

Earlier peer-reviewed work — seven papers (three journal articles, four conference papers) spanning cloud computing and distributed systems, network optimization, and information-systems project management: *IEEE Transactions on Cloud Computing*, *Procedia Computer Science*, *NBIS*, *Asia Modelling Symposium*, and the *International Journal of Information Systems & Project Management*. Citation record: 41+ citations, h-index 4 (IEEE Trans. Cloud Computing 15; IJISPM 11; Procedia Computer Science 6). This body of work — mathematical modelling, optimization under constraints, and empirical validation — underpins the courses I teach in algorithms, distributed systems, and data science.

PROJECTS USED IN TEACHING

CineInfini — open-source AI-evaluation framework and live Studio.

- A public, running demonstration environment students can open in a browser: it selects a video dataset, computes perceptual quality scores (SRCC, PLCC, KRCC), then runs an LLM judge — a concrete artifact for teaching evaluation metrics, benchmarking, and reproducibility rather than describing them abstractly.
- Engineering practices visible to students: >90% test coverage, audit logging, semantic versioning, automated CI/CD with go/no-go release gating, and DOI-archived results — an authentic case study for software-engineering and MLOps courses.

JokeJoy — multi-LLM generative-AI application.

- A production system built on multiple large language models (GPT-4o with Gemini fallback), with automatic provider switching and dynamic context-injection prompting — a working example for teaching applied generative AI, prompt engineering, and the cost/latency trade-offs of real deployments.

SERVICE & PROFESSIONAL CONTRIBUTIONS

- Open-source contribution to the community: the CineInfini evaluation framework and a public, live demonstration studio, used as current teaching material for reproducible AI evaluation.
- Designed the methodology, architecture and statistical framework myself, and implemented the platform with AI-assisted development under a verification protocol — the same discipline it applies to the systems it evaluates.
- Mentored a team of 8 analysts in a government setting.
- Bridging academia and industry: 10+ years of professional practice feeding authentic case studies, applied projects, and industry contacts relevant to co-operative education into the classroom.

EDUCATION

PhD, Computer Engineering — Polytechnique Montréal, Université de Montréal (February 2016).

- Dissertation on real-time migration of interdependent virtual machines in cloud networks.
- Mixed-integer programming models and Tabu Search metaheuristics validated on Google traces: reduced service penalties by 13.5% (avg.) and physical-machine usage by up to 37%.

MBA — Université du Québec à Montréal (UQAM). Management, strategy, and organizational decision-making — directly useful when teaching in professional programs and connecting technical work to business context.

B.Eng., Computer Science & Engineering — Polytechnique Montréal.

NEW COURSES I COULD DEVELOP

- Evaluating AI Systems — metrics, benchmarks, human annotation, LLM-as-a-judge, and how to tell a trustworthy result from a fragile one.
- Reproducible Data Science — versioning, testing, audit trails, and CI/CD applied to analytics workflows, taught through hands-on projects.
- Applied Generative AI & LLMs — prompt engineering, retrieval-augmented generation, multi-model architectures, cost/latency trade-offs, and responsible deployment.
- Trustworthy & Responsible AI — bias, robustness, transparency, and emerging regulation (EU AI Act, ISO/IEC 42001) for practitioners.

ADDITIONAL INFORMATION

- I can work in Canada, France and across the European Union and EEA. Eligible for TN status under the USMCA for the United States. Available to teach in the summer academic term and to relocate as required. Available in Montréal, Toronto and Paris.
- Comfortable teaching in-person, hybrid, and online formats, to undergraduate, graduate, and professional-master's audiences.
- Languages: **English** — fluent (professional); **French** — native. Able to teach and supervise in French and English.