

Rayan Zakaria HASSICI

PhD Student, Computer Science, AI for Software Engineering

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Summary

PhD student in Computer Science at Université de Montréal (DIRO) working on AI-assisted software engineering. I study the reliability, cost, and trade-offs of AI coding agents, comparing open-source and proprietary toolchains. Experienced in automated program repair, empirical evaluation, and shipping production ML and full-stack systems. Seeking a research internship on benchmarks and evaluation methods for developer tooling.

Education

- **UdeM: Université de Montréal – DIRO** *Sep 2026 – Present*
Ph.D. in Computer Science Montréal, QC, Canada
- **ENSIA: Ecole Nationale Supérieure de l'Intelligence Artificielle** *Jul 2021 – Jun 2026*
Master's and Ingénieur d'État in AI & Data Science Sidi Abdellah, Algiers
Master's Grade: 16.08/20
- **EHEC: Higher School of Commercial Studies** *Aug 2024 – Jun 2026*
Master's in Management for Engineers (Double Degree Program) Kolea, Algiers

Research Experience

- **Université de Montréal** *Feb 2026 – Aug 2026*
Software Engineering Research Intern Montréal, QC, Canada
 - Reviewed automated program-repair pipelines and identified research gaps in context usage and feedback-driven patch generation.
 - Proposed context retrieval for agentic program repair that preserves repair performance while using 14% fewer tokens.
 - Applied cross-task knowledge distillation to improve LLM patch generation from patch-validator feedback.
 - Developed an LLM-as-Jury to detect patches that pass tests but are incorrect or fail in production.

Industrial Experience

- **Systemium** *Jun 2025 – Jun 2026*
AI & Software Engineer (Freelance) France – Remote
 - Built a full-stack construction management SaaS to client requirements, integrating agentic AI features.
- **ATM Mobilis** *Sep 2024 – Oct 2024*
Data Science Intern Algiers, Algeria
 - Developed and deployed an Arabic RASA chatbot for customer-service inquiries; it was integrated into the MyMobilis application.
- **Algerian Ministry of Higher Education** *Nov 2023 – Mar 2024*
Technical Consultant & Data Scientist Algiers, Algeria
 - Developed a FastAPI-based university-selection recommendation platform and pitched it to the Minister of Higher Education, securing nationwide adoption.
- **Gostu (Tech Startup)** *Jul 2024 – Nov 2024*
Co-Founder & Lead Mobile Developer Algiers, Algeria
 - Co-founded the startup, led its technical strategy and mobile product roadmap, and released an interactive Flutter learning application.

Publications & Manuscripts

- **R. Z. Hassici**, H. Sahraoui, A. Korichi. *Manuscript in preparation on context optimization for retrieval in agentic program repair*. Targeting MSR 2027.

Skills & Expertise

- **ML & AI:** PyTorch, HuggingFace, Scikit-learn, TensorFlow, LLM Evaluation, Knowledge Distillation, Agentic AI Systems
- **Research Methods:** Benchmark Design, Experimental Design, Empirical Evaluation, Data Visualization
- **AI Coding Agents & SE Research:** Automated Program Repair, SWE-bench, OpenCode
- **Engineering:** Python (Pandas, NumPy), C++, SQL, Docker, Linux, Bash, Git, API Design, Next.js, Node.js, FastAPI
- **Research Communication:** L^AT_EX, BibT_EX, Scientific Writing, Technical Presentations
- **Languages:** English (Fluent), Arabic (Native), French (Proficient)

Certifications

NVIDIA: [Fundamentals of Deep Learning](#) | **Coursera:** [Neural Networks and Deep Learning](#), [Improving Deep Neural Networks](#)