

RAYEN GHALI

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Education

University of Moncton

Master of Applied Science (MAsc) - CGPA: 4.15/4.3

Jan. 2024 – Dec. 2025

New Brunswick, Canada

National Institute of Applied Science and Technology (INSAT)

Engineering studies in Instrumentation and Industrial Maintenance - High Honors

Sep. 2018 – Oct 2023

Tunis, Tunisia

Experience

CEAAC (Centre d'études acadiennes Anselme-Chiasson)

AI Research Assistant

Jun 2024 – Nov 2024

New Brunswick, Canada

- Implementing an open-access natural language processing system with agentic retrieval augmented generation for efficient querying of Acadian archives.
- Developing a ChatGPT-like interface to enhance accessibility of Acadian heritage for researchers and the public, leveraging large language models and knowledge graphs.
- Designing a knowledge management system to integrate expert archivists' insights into the AI-powered query process.
- Project website: chatacadien.ca
- Tech stack: Python, Langchain, Neo4j, Docker.

LARIHS Lab, University of Moncton

AI Research Assistant

Dec 2023 – Present

New Brunswick, Canada

- Collaborating on diverse projects, focusing on Robotics and AI research in computer vision for few-shot defect detection and Big Data Time Series Analysis.
- Tech stack: Python, PyTorch, Pandas, Bash.

LARIHS Lab, University of Moncton

AI Research Intern

May 2023 – Aug 2023

New Brunswick, Canada

- End-of-studies Project focused on 'Industrial surface defect detection employing computer vision and a KUKA arm robot.' Funded by Mitacs Globalink scholarship.
- Applying contrastive learning with YOLO and DETR based models for few-shot object detection for limited datasets of industrial surface defects for wood and steel products.
- Explore techniques to improve object detection of small-size defects.
- Tech stack: Python, PyTorch, Bash, SAHI

TICDCE (Tunis International Center for Digital Cultural Economy)

Data Science Intern

Jul 2022 – Sept 2022

Hybrid

- Create a recommendation system based on collaborative filtering for tourists interested in historical places in Tunisia.
- Explore different models of recommendation systems (Content-Based, Collaborative, or Hybrid).
- Apply Augmentation techniques for a private dataset containing numeric and categorical features.
- Tech stack: Python, TensorFlow, scikit-learn, SMOTE.

STMicroelectronics — INSAT

Embedded Systems Developer Intern

Feb 2022 - June 2022

Tunis, Tunisia

- Load image decoding library libsail on top of Azure RTOS libraries.
- Contribute to the realization of a demo based on the ported libsail library running on an STM32 card.
- Tech Stack: C/C++, libsail, STM32CubeIDE, Git.

ST2i (Société Tunisienne d'Informatique pour l'Ingénierie)

Back-End Developer Intern

Jul 2021 – Sept 2021

Hybrid

- Study and compare different open-source IAM (or IdP) layers based on OAuth 2.0 for identity management and user access control.
- Implement the 'Keycloak' layer as a RESTful API in a micro-service architecture application.
- Tech Stack: JAVA, Angular, Spring Boot, PostgreSQL.

Technical Skills

Languages: Python, SQL

Technologies: Git, Docker, Pytorch, MongoDB, Streamlit, Langgraph

Languages

Arabic : Native

French : Bilingual

English : Full Professional Proficiency