

Rafik M. Chemli

Senior AI Engineer

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PROFILE SUMMARY

Accomplished Senior AI Engineer with 7+ years of experience in machine learning, cloud architecture, and data science across government, biotech, energy and consulting sectors. Proven track record of delivering high-impact AI solutions including multi-tenant RAG systems, anomaly detection pipelines, and privacy-preserving federated learning implementations. Expert in cloud services, Python development, and modern MLOps practices with demonstrated ability to lead client-facing technical projects and convert proof-of-concepts into substantial business value. Published researcher in AI privacy techniques with experience mentoring teams and establishing responsible AI practices in large organizations.

EXPERIENCE

Cloud & AI Solutions Engineer (Freelance)

Oct. 2024 – Present

New Math Data (AWS Partner)

Remote

- Lead technical delivery for client projects, creating architecture diagrams, scoping, cost calculations and implementations of AWS cloud solutions.
- Successfully delivered 5+ proof-of-concepts for energy, education and real estate sector, converting a 2-week engagement POC into over \$300K of business value.
- Developed Python ETL pipeline to process electrical grid waveform data for real-time anomaly detection using AWS SageMaker, Glue, and Random Cut Forest. Implemented feature extraction using statistical measures (skewness, kurtosis, crest factor) with pattern clustering and deployed interactive monitoring dashboard that prevents grid failures costing \$75K–\$200K per incident.
- Built cloud-agnostic multi-tenant RAG (Retrieval-Augmented Generation) pipeline with containerization using AWS, MongoDB, OpenSearch, FastAPI, ECS, and Terraform. Created reusable Terraform template currently used as foundation for multiple production systems.

Senior Data Scientist

2022 – Present

Government of Canada, Statistics Canada

Montreal, Canada

- Conduct research and implementation on synthetic data and privacy techniques like differential privacy and federated learning for secure data use in collaboration with the UN and CIFAR, unlocking the effective use of terabytes of sensitive data for policy-makers.
- Lead and manage over 20 peer review processes per year following responsible AI principles for the Centre for AI Research and Excellence, ensuring higher quality standards across Statistics Canada's AI projects.
- Mentor junior team members in developing their skills and successfully completing their projects within set projects deadlines.
- Published research on decentralized model training using Flower and Opacus across multiple National Statistical Organisations in the 64th Irving Fisher Committee on Central Bank Statistics bulletin.

Data Scientist

2020 – 2022

Galenus Sciences

Montreal, Canada

- Optimized over 300 COVID-19 testing kits used in Canada's national testing program by enabling R&D with live analysis of all wet-lab experiments.
- Successfully showcased the value of modern data science techniques for laboratory research and collaborated with a cross functional R&D team of chemists and biologists.
- Built interactive data pipeline and web dashboard with XGBoost ML predictions for real-time experiment monitoring. Reduced analysis time for next experiment suggestions by 2 days, enabling faster R&D iteration cycles and improved laboratory efficiency.

Data Scientist Intern

May 2019 – Sep. 2019

My Intelligent Machines

Montreal, Canada

- Analyzed multi-omics data to identify therapeutic targets for basal-like and triple-negative breast cancer through statistical analysis of over 1 million data points using Python, R, and SQL on Linux server infrastructure.
- Developed and implemented predictive modeling pipelines using scikit-learn for regression and classification tasks, gaining hands-on experience with large-scale data processing challenges and parallel computing optimization.

EDUCATION

Université du Québec à Montréal

Montreal, Canada

Master's Degree in Bioinformatics

2018 – 2019

Université du Québec à Montréal

Montreal, Canada

Bachelor Degree in Biology

2015 – 2018