Alexis ROGER

+1 (514) 416-5332
alexis.roger@mila.quebec
linkedin.com/in/alexisroger99
github.com/Alexis-BX
roger-labs.com/alexis

Education

PhD in Artificial Intelligence – McGill University — Montreal, Canada
Topic: Multimodal Foundation Models, with a focus on Time Series — *09/2024 - 08/2027*

Master of Science – Université de Montréal — Montreal, Canada
Major: Computer Science; Specialization: Artificial Intelligence; GPA: 4.1 — *09/2021 - 12/2023*

Ecole Polytechnique Fédérale de Lausanne — Lausanne, Switzerland
Exchange Semester — *09/2019 - 01/2020*

Bachelor of Science – Ecole Polytechnique — Paris, France
Majors: Mathematics and Computer Science; Minor: Biology; GPA: 3.52 — *09/2017 - 06/2020*

Skills Summary

Languages:	French (native), English (C2), German (B1), Japanese (A1)
Programming Languages:	Python (advanced), C++ (advanced), C, JavaScript, Bash, Java, x86, SQL, Coq, Scala
Data Processing, ML and AI:	Pandas, Scikit, TensorFlow, PyTorch, Keras, Jupyter, PySpark, Snowflake, Databricks
Web and Cloud Technologies:	Flask, NodeJS, React, Proxmox, SaltStack, Docker, AWS
Other Tools:	Git, Latex, Vim, VSCode, Raspberry Pi, Arduino, ROS, Gazebo

Experience

Research in Time Series Foundation Models – McGill University & MILA — Montreal, Canada — *01/2025 - present*
- *Performing exhaustive scaling and architecture studies on time series foundation models.*
- *Work conducted on the Frontier, Summit (co-PI) and AMD HPC fund (PI) supercomputers.*
- *Development of agentic workflows to improve research productivity and reproducibility.*
- *Supervisors: Pr. Blake Richards and Pr. Irina Rish.*

Head of Research – Roger Labs — Montreal, Canada — *09/2025 - present*
- *Consultant in multi-modal foundation models and agentic pipelines for industry clients.*

IT Banking Consultant – Forty2 AG — Zurich, Switzerland — *04/2024 - 06/2024*
- *Built novel retrieval augmented generation pipelines for local documentation querying.*
- *Performed various Avaloq customisations for major european banks.*

Research in Vision-Language Models and Ethics – Université de Montréal & MILA — Montreal, Canada — *09/2022 - 12/2024*
- *Developed SOTA Vision Language Models (VLM) based on the Pythia, GPT and Mistral models.*
- *Trained and released a VLM scaling suite over both language model and vision encoder.*
- *Developed halluciantion detection and mitigation algorithms for VLMs.*
- *Developed a Chatbot enabling rapid VLM morality and ethics evaluation.*

Technology Analyst – Morgan Stanley — Montreal, Canada — *05/2022 - 08/2022*
- *Developed anomaly detection algorithms and AIs to ensure no abuse of database accesses.*
- *Built on a Databricks cloud infrastructure with Snowflake databases.*

System Engineer – Polytechnique Montréal — Montreal, Canada — *04/2022 - 08/2023*
- *Directed the technical development of the extra-terrestrial Rover project of PolyOrbite.*
- *Coordinated a multidisciplinary team of 50 students from 11 engineering fields.*
- *Participated in international competitions (Canadian International Rover Challenge and URC).*

Research on classification algorithms to improve cancer detection – Stilla Technologies — Paris, France — *03/2021 - 07/2021*
- *Developed 6 dimensional clustering algorithms to identify rare DNA samples indicating cancer.*
- *Management of patient confidentiality and data privacy regulations.*

Technical consultant – Polyconseil — Paris, France — *10/2020 - 03/2021*
- *Main project: Vanuatu domestic submarine cable feasibility study and pricing analysis.*
- *Wrote algorithms to optimise submarine fibre-optic cable paths to minimise cost.*
- *Performed data flow and bottleneck analysis for a major telecommunications company.*

Non-conventional geopositioning for drones research project – EPFL — Lausanne, Switzerland — *09/2019 - 01/2020*
- *Developed self-locating algorithms for drones based exclusively on its camera's images.*
- *Algorithms were based on convolutional neural networks and the YOLO algorithm.*
- *Created an online flight simulator to build synthetic training data and test the algorithms.*

Publications

Forecasting Emerges from Auto-Regressive Pretraining: Latent Predictive Structure in Language Models *07/2026*
Alexis Roger, Prateek Humane, Zhenghan Tai, Gwen Legate, Andrei Mircea, Vasilii Feofanov, Irina Rish
Published in the Forecasting as a New Frontier of Intelligence Workshop at ICML 2026 (Oral).

Reusable Low-Rank Subspaces Explain Why Cross-Modal Transfer Adapts with Tiny Updates *07/2026*
Alexis Roger, Prateek Humane, Zhenghan Tai, Gwen Legate, Andrei Mircea, Vasilii Feofanov, Irina Rish
Published in the 2nd Workshop on Connecting Low-rank Representations in AI (CoLoRAI) at ICML 2026.

Small Vocabularies, Big Gains: Pretraining and Tokenization in Time Series Models *01/2026*
Alexis Roger, Gwen Legate, Kashif Rasul, Yuriy Nevmyvaka, Irina Rish
Published in the Artificial Intelligence for Time Series Analysis (AI4TS) Workshop at AAAI 2026.

Image Tiling for High-Resolution Reasoning: Balancing Local Detail with Global Context *01/2026*
Anatole Jacquin de Margerie, Alexis Roger, Irina Rish
Published in the Reproducible AI Workshop at AAAI 2026 (Oral).

Random Initialization Can't Catch Up: The Advantage of Language Model Transfer for Time Series Forecasting *07/2025*
Roland Riachi, Kashif Rasul, Arjun Ashok, Prateek Humane, Alexis Roger, Andrew R. Williams, Yuriy Nevmyvaka, Irina Rish
Published in the Foundation Models for Structured Data workshop at ICML 2025.

Robin: a Suite of Multi-Scale Vision-Language Models and the CHIRP Evaluation Benchmark *09/2024*
Alexis Roger, Prateek Humane, Daniel Z. Kaplan, Kshitij Gupta, Qi Sun, George Adamopoulos, Jonathan Siu Chi Lim, Quentin Anthony, Edwin Fennell, Irina Rish

The Effect of Data Corruption on Multimodal Long Form Responses *07/2024*
Daniel Z. Kaplan, Alexis Roger*, Mohamed Osman*, Irina Rish*
Published in Foundation Models in the Wild workshop at ICML 2024.

Towards Adversarially Robust Vision-Language Models *07/2024*
Rishika Bhagwatkar, Shravan Nayak, Reza Bayat, Alexis Roger, Daniel Z Kaplan, Pouya Bashivan, Irina Rish
Published with presentation in Trustworthy Multi-modal Foundation Models and AI Agents at ICML 2024

Training Large Multimodal Language Models with Ethical Values *08/2023*
Alexis Roger
Master thesis, Université de Montréal, accepted with distinction "excellent".

Towards Ethical Multimodal Systems *05/2023*
Alexis Roger, Esma Aïmeur, Irina Rish
Published in AI meets Moral Philosophy and Moral Psychology workshop at NeurIPS 2023.

A Privacy-Preserving Federated Learning for IoT Intrusion Detection Systems *01/2023*
Riadh Ben Chaabene, Darine Ameyed, Fehmi Jaafer, Alexis Roger, Aimeur Esma, Mohamed Cheriet
Published in the International Conference on Control, Decision and Information Technologies 2023.

Aligning MAGMA by Few-Shot Learning and Finetuning *09/2022*
Jean-Charles Layoun, Alexis Roger*, Irina Rish*
Published in the Montreal AI Symposium.

Other activities

- Participated in G-Research Spring into Quant Finance workshops (2025)
- Teacher assistant for the course *Data Structures and Algorithms* (2023)
- Competition judge: Canadian CS Games and Regional Science Fair finals
- Won Montreal G-Research Competition (2022)
- System administrator (2019-2024)
- Certified pyrotechnician (F4T2 N2)