

Short Bio

I am a Senior Data Scientist at the Department of Information Management, National Bank of Canada, with cross-continental experience across Eurasia, East Asia, and North America. Alongside my industry role, I actively contribute to academic research and open-source initiatives through my self-founded company, Learning By Machine. My work focuses on advancing machine learning, with expertise in deep learning, natural language processing (NLP), and reinforcement learning (RL). I apply these methods to complex data types—including time series, text, images, audio, and wearable signals. My research has been featured in top-tier venues such as NeurIPS, AAAI, SDM, ICDM, Nature, and IEEE Transactions journals. You can explore my publications via my website.

Research Interests

- **Machine Learning:** Self-Supervised Learning; Generative AI; Representation Learning; Multi-View Learning; Big Data; Deep Learning; Probabilistic, Bayesian, and Causal Models; Natural Language Processing; Computer Vision.

Endorsed Skills

- **Programming Languages:** Python, Rust, Kotlin (+KMP, CMM), SwiftUI, Javascript, Scala, R, MatLab, Java, C, C++, Dart.
- **Machine Learning:** Scikit-learn, Tensorflow (+Probability, GPflux), JAX, PyTorch (+LibTorch, Tch-rs, Rust-bert), PyWhy, Stable-Baselines3, Transformers, Accelerate, Linfa, OpenCV, CUDA, PySpark, NLTK, Stanford NLP, NER, Apache Spark, Apache Hadoop.
- **LLM:** ChartGPT, Claude, Llama, BERT, BART, OpenChat, Mistral, Phi, Whisper, Wav2Vec.
- **Database:** PostgreSQL, MySQL, ScyllaDB, Redis, Kafka, CassandraDB, MongoDB, Microsoft SQL, Oracle Database.
- **Neuroscience:** AFNI, FSL, SPM, FreeSurfer, Group ICA, NIFTI.
- **Operating System:** Linux (Arch, Fedora, and Debian), macOS, Windows (+Server), UNIX (FreeBSD, OpenBSD), Solaris, Cisco IOS.
- **DevOps:** Docker, Kubernetes, Helm, CI/CD (GitLab and GitHub), JWT, Proxmox HPC, Ceph.
- **Cloud Platforms:** Amazon AWS, Google Cloud, Microsoft Azure.
- **Hardware Platforms:** ARM, FPGA (Xilinx), Verilog, VHDL, Altium Designer.
- **Other Frameworks:** Yew, Actix, Axum, FastAPI, React, NextJS, Agile, Hive, Scrum, Karbon.

Education

- **Ph.D.**, 2018, Computer Science, Nanjing University of Aeronautics and Astronautics
- **M.Sc.**, 2013, Information Technology, Mazandaran University of Science and Technology
- **B.Sc.**, 2010, Computer Engineering, Mazandaran University of Science and Technology

Experiences (since 2005)

- **Sr. Data Scientist @ National Bank of Canada** Mar/2025–present
- **Sr. Data Scientist @ Canadian Western Bank** Oct/2024–Mar/2025
** The Canadian Western Bank has merged with the National Bank of Canada.
- **CEO/Founder @ Learning By Machine** Mar/2024–present
A self-employed role that initially focused on providing AI consulting. I now use this title solely to contribute to academic research and open-source projects.
- **Research Associate** Apr/2024–Oct/2024
Departments of Computing Science, and Psychiatry, University of Alberta (full-time).
Working with Prof. Andrew Greenshaw and Prof. Russell Greiner.

- **System Architecture Adviser @ Strongest Families Institute Jun/2024–Oct/2024**
A contract job for DevOps concentrating on migrating the existing IRIS system to a new scalable platform using Rust, PostgreSQL, Kubernetes, and related technologies.
- **AI Lead @ PeerX AI Apr/2024–Oct/2024**
A contract job for MLOps various scalable NLP/LLMs for sentiment analysis, toxic chat detection, depression flagging, and data anonymization.
- **Lead Software and Design @ FutureCite Jan/2024–Oct/2024**
A contract job for MLOps various scalable NLP/LLMs for course and job matching, and developing lifestyle-based machine learning analysis using wearable data.
- **Lead Software and Design @ FutureCite Jan/2023–Jan/2024**
A funded MITACS project to migrate and scale the existing system to Kubernetes and GCP AlloyDB (PostgreSQL) and prepare them for machine learning services
- **Postdoctoral Fellow Mar/2019–Apr/2024**
Departments of Computing Science, and Psychiatry, University of Alberta (full-time).
* Primarily funded by Alberta Machine Intelligence Institute (Amii)
- **Postdoctoral Fellow Jul/2018–Mar/2019**
Department of Computer Science, Nanjing University of Aeronautics and Astronautics (full-time).
- **Research Assistant Sep/2014–Jun/2018**
Department of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics (full-time job, part of my Ph.D. funding).
- **CTO @ Rasa Ertebatat Soffe Co. Aug/2013–Aug/2014**
A full-time job for designing data centers, IT infrastructure, VoIP, and embedded software
- **Lecturer Feb/2010–Jul/2014**
Department of Computer Science, Mazandaran University of Science and Technology, Courses: Data Mining, Expert System, Machine Learning, Computer Networks & Lab., Network Operating System & Lab., Microprocessor & Lab., FPGA, VHDL & Verilog (part-time job)
- **Senior Computer Engineer @ Rasa Ertebatat Soffe Co. Feb/2009–Jul/2013**
A part-time job for designing data centers, IT infrastructure, VoIP, and embedded software
- **CTO @ Reza Noor Ltd. Nov/2006–Aug/2008**
A full-time job for designing IT infrastructure, VoIP, and Expert Systems

Selected Publications

- **2024, Joint Learning for Visual Reconstruction from the Brain Activity. Unifying Representations in Neural Models, NeurIPS Workshop.**
- **2023, Functional Alignment-Auxiliary Generative Adversarial Network-based Visual Stimuli Reconstruction via Multi-subject fMRI. IEEE TNSR.**
- **2023, A comprehensive review on motion trajectory reconstruction for EEG-based brain-computer interface, Frontiers in Neuroscience.**
- **2023, Using temporal GAN to translate the current CTP scan to follow-up MRI, for predicting final acute ischemic stroke lesions. SPIE Medical Imaging**
- **2022, Detecting Presence of PTSD Using Sentiment Analysis From Text Data. Frontiers in Psychiatry.**
- **2021, Predicting pediatric anxiety from the temporal pole using neural responses to emotional faces. Nature Scientific Reports.**
- **2020, Shared Space Transfer Learning for analyzing multi-site fMRI data, NeurIPS.**
- **2017, Deep Hyperalignment, NIPS.**
- **2017, Local Discriminant Hyperalignment for multi-subject fMRI data alignment, AAAI.**
- **2027, Multi-Region Neural Representation: A novel model for decoding visual stimuli in human brains. SIAM SDM**