

Luong-Ha Nguyen

Artificial Intelligence & Machine Learning Engineer

Experienced AI/ML Engineer with a background in developing and optimizing learning paradigms as well as AI/ML pipelines, including modeling, validation, and deployment strategies in production. Skilled in uncertainty modeling and machine learning approaches, with a notable track record in driving innovation in manufacturing, renewable energy, infrastructure monitoring, and aerospace sectors through interdisciplinary teamwork.

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PROFESSIONAL EXPERIENCE

- Machine Learning Engineer at AI Redefined** | Montreal, QC, CA July, 2022 - present
- Develop end-to-end machine learning pipelines for applications in time series forecasting and anomaly detection, continually improving accuracy through regular feedback from operators and asset managers.
 - Lead the development of vision-based detection algorithms using reinforcement learning with human feedback.
 - Spearhead research initiatives with both industrial and academic partners.
- Applied Research Associate at Polytechnique Montreal** | Montreal, QC, CA May, 2022 - present
- Lead and coordinate a team of PhDs and postdocs in the collaborative development of an efficient learning paradigm for deep neural networks to enhance accuracy and reduce training time across various learning tasks.
 - Lead the technical development of open-source software cuTAGI.
 - Lead the technical development of Python interface for integration with the C++/CUDA backend.
- Machine Learning Engineer at Shearwater Aerospace** | Montreal, QC, CA September, 2021 - June, 2022
- Developed machine learning-based path planning system to improve UAV flight efficiency.
 - Developed an autonomous control system using reinforcement learning for UAVs.
- Postdoctoral Researcher at Polytechnique Montreal** | Montreal, QC, CA November, 2019 - September, 2021
- Formulated a theoretical approach for modeling uncertainty in neural networks.
 - Implemented and tested the proposed approach on various learning tasks.

SKILLS

Tech Stack C/C++ CUDA Python MATLAB JavaScript React Terraform AWS Azure Cloud Computing
Microservices gRPC REST API Kubernetes PostgreSQL Docker GitHub Helm Chart

AI/ML PyTorch TensorFlow Numpy Pandas Scikit-learn Probability & Statistics Reinforcement Learning
Machine Learning Theories Supervised Learning Unsupervised Learning

Languages Fluent in English and French, with native proficiency in Vietnamese

EDUCATION

Ph.D. in Computer Science for Civil Engineering at Polytechnique Montreal | Montreal, QC, CA October, 2019

PERSONAL PROJECTS

- cuTAGI** for Bayesian Neural Networks (2018-present) | <https://tagiml.com>
- cuTAGI: An open-source Bayesian neural network developed in C++/CUDA. It quantifies uncertainty in deep neural networks for various learning tasks, enhancing output reliability and accuracy.
- Transformer Temporal Fusion** (2023) | Source code: <https://github.com/lhnguyen102/tft-sgd>
- Implementation of the Transformer Temporal Fusion (TFT) method, leveraging self-attention mechanisms for enhanced accuracy and detailed explainability in time series forecasting

PUBLICATIONS

1. Analytically Tractable Hidden-States Inference in Bayesian Neural Networks. *JMLR*, 2022.
2. Tractable Approximate Gaussian Inference for Bayesian Neural Networks. *JMLR*, 2021.
3. Analytically Tractable Inference in Neural Networks-An Alternative to Backpropagation, *NeurIPS*, 2021.