

Luong-Ha Nguyen

Artificial Intelligence & Machine Learning Engineer

AI/ML Engineer with expertise in developing and optimizing learning paradigms and AI/ML pipelines including modeling, validation, and deployment. Skilled in uncertainty modeling, supervised, unsupervised, and reinforcement learning, backed by a solid track record in deep neural network research and 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.
- Lead the development of vision-based detection algorithms using RLHF techniques.
- Spearhead research initiatives with both industrial and academic partners.

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 development of Python interface for connecting 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 (2028-present) | <https://tagiml.com>

- cuTAGI: An open-source Bayesian neural network developed in C++/CUDA. It quantifies uncertainty in deep neural networks for supervised, unsupervised, and reinforcement learning tasks, enhancing output reliability and accuracies.

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.