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 Leanring, Unsupervised Leanring

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 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.