Thang Duong

thangduong@arizona.edu | github.com/duongnhatthang | Google Scholar | LinkedIn

Summary

PhD candidate and NeurIPS 2024 first author specializing in LLM reasoning and Reinforcement Learning. Seeking to apply 5+ years of research experience from academia and industry (Qualcomm) to solve LLM reasoning and large-scale recommendation & personalization challenges. Proven record of publishing top-tier work and delivering 3x faster convergence in RL and 2x improvement in wireless beam alignment benchmarks. Passionate about LLM reasoning and sample efficient RL at scale.

Education

The University of Arizona Tucson, AZ
PhD. Candidate (expected Jan. 2027) in Computer Science *Aug. 2022 – Present*

Research focus: High dimensional Interactive Learning by utilizing domain knowledge (Advisor: Prof. Chicheng Zhang).

Hanoi University of Science and Technology Hanoi, Vietnam
B.S.E in Mechatronics Engineering, Advanced Program *Sep. 2012 – May 2018*

Publications

NeurIPS 2024: *Beyond task diversity: Provable representation transfer for sequential multi-task linear bandits* – First author.
In submission: ICLR (RL warm-starting with LLMs and efficient Sequential Multitask Bandit) and INFOCOM (Physics informed bandit for mmWave communication)
[Google Scholar Profile]

Experience

Graduate Research Assistant Aug. 2022 – Present
The University of Arizona *Tucson, AZ*

- Provided a regret guarantee and eliminated the task diversity assumption to show that **Sequential Multitask Representation Transfer in Bandit** is applicable to real-world problems (**NeurIPS 2024**).
- Achieved **2x reduction** in beam alignment regret on DeepMIMO and DeepSense6G benchmarks by developing **physics-informed bandit algorithms** for Wireless Communication. Cross-team collaborated with Prof. Ming Li's lab from the ECE department.
- Achieved **3x faster** convergence on OpenAI Gym by developing a novel **RL warm-start pipeline using LLM-collected demonstrations**. Mentoring one undergraduate. Enabled reproducible research by developing a modular evaluation suite and release scripts for large-scale experiments on H100 GPUs.

Visiting Student May 2025 – Aug. 2025
Toyota Technological Institute at Chicago (TTIC) *Chicago, IL*

- **RL Advantage analysis for LLMs' PRM**: Investigating the theoretical underpinnings of Process Reward Models (PRMs) in LLM reasoning by framing them within the Actor-Critic framework. This ongoing research, in collaboration with Prof. Chicheng Zhang et al., aims to provably improve the reasoning capabilities of LLMs as a PRM guided search-based policy.

Research Resident Dec. 2019 – June 2022
Qualcomm *Hanoi, Vietnam*

- **Bandits meta-learning**: Supported a comprehensive literature review and implemented a modular meta-learning codebase for multi-task bandits leveraging shared structure. Demonstrated improved sample-efficiency in a comprehensive suite of experiment and ablation study on a synthetic dataset; results accepted at **RLC 2024**.
- **Active Learning for Domain Adaptation**: Prototyped several active learning strategies to explore their viability for domain adaptation and model warm-starting.
- **Sim-to-Real Data Augmentation**: Investigated Sim-to-Real transfer techniques by developing and testing a proof-of-concept domain adaptation method in the CARLA simulator.

Junior Engineer July 2019 – Dec. 2019

Qualcomm *Hanoi, Vietnam*

- Engineered an Android application using OpenGL 2.0 to provide 3D visualization of facial reconstruction models, serving as the primary technology demonstration at the NeurIPS 2019 conference.

AI Team leader, Scrum master May 2018 – June 2019

NAL Vietnam JSC *Hanoi, Vietnam*

- Collaborated with the product and engineering teams to integrate multiple NLP models (e.g., intent classification, entity recognition) into Chatops, a commercial chat interface for business.
- Led a team of six members in the successful integration of Facial recognition models for a Parent-Children matching product, deployed in six kindergarten locations.

Skills

Core ML/AI: PyTorch, TensorFlow, HuggingFace, Transformers, OpenAI Gym, RLlib
Languages: Python, Java, C/C++
Developer Tools: Git, Docker, Linux, CUDA
Research: Online Learning, Reinforcement Learning, Multi-task Learning, Bandit Theory, LLMs, Representation Transfer, LLM-RL alignment, Representation Learning, Meta-learning