Thang Duong

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RESEARCH INTERESTS

Reinforcement learning, Meta learning, Bandits, Robotics, Representation learning, Transfer learning, and Domain Adaptation.

EDUCATION

Hanoi University of Science and Technology **Hanoi, Vietnam**
B.S.E in Mechatronics Engineering, Advanced Program
GPA: 3.07/4.00 (Top 5% of the program)

VinAI Research **Hanoi, Vietnam**
AI Research Resident *July 2019 - Now*

- **Meta-Reinforcement Learning** and **Bandits**, supervised by Dr. Yasin Abbasi-Yadkori and Dr. Tung Pham
- **Active Learning** and **Domain Adaptation**, supervised by Dr. Toan Tran, Dr. Trung Le, and Dr. Dinh Phung
- **Sim-to-Real Data Augmentation**, supervised by Dr. Rang Nguyen

OTHER RESEARCH EXPERIENCE

Precision Mechanical and Optical Engineering Department - HUST **Hanoi, Vietnam**
Project leader *Jan 2018 - June 2019*

- (PRESM 2019 conference) Deep Regression for precise geometric dimension measurement
- (INISCOM 2018 conference and Thesis) Analyzing seismic signal using SVM for vehicle motion detection

National Chung Cheng University **Minxiong, Chiayi, Taiwan**
Intern *June 2016*

- Summer Internship: 3D scanner' camera calibration

Sun Moon University **Asan, South Korea**
Intern *July 2015*

- Summer Internship: ECG signal processing and Robot Control Programming

Publications

Bandit Meta-Learning with a Small Set of Optimal Arms
*Yasin Abbasi Yadkori, **Thang Duong**, Claire Vernade, András György*
Under submission: [Link]

COURSES & BOOKS

Reinforcement Learning

- Bandit algorithms - Csaba Szepesvari and Tor Lattimore
- David Silver's Reinforcement Learning course

Others

- UC Berkeley CS294 Deep Unsupervised Learning
- Stanford CS231n: Convolutional Neural Networks for Visual Recognition
- Coursera's Machine learning and Deep learning Specialization Courses
- Cinnamon AI lab's internship: NLP (N-grams, HMM, etc.) and Computer Vision (classical image processing techniques)

VinAI's in-house training

- Linear Algebra, Probability & Statistics, Advanced Statistics by Dr. Tung Pham
- Fundamentals of Machine Learning by Dr. Toan Tran

WORK EXPERIENCE

VinAI Research **Hanoi, Vietnam**
Junior Engineer *July 2019 - Dec 2019*
- Developed the front-end for the 3D Face Reconstruction demo at NeurIPS 2019 (Android, OpenGL 2.0)

NAL Vietnam JSC **Hanoi, Vietnam**
AI Team leader, Scrum master *May 2018 - June 2019*
Managing a team of 6 members to deliver multiple products with these technologies:
- Facial recognition
- Vietnamese Text2Speech and Speech2Text
- Chatops: https://chatops.vn/en/
- Other Proof-of-Concept projects: OCR, Defect detection, Grammar correction, etc.

FPT Software **Hanoi, Vietnam**
Technical leader *Apr 2017 - Sep 2017*
- R&D project: Application using OpenCV object detection and tracking
- Building cross-platform applications with Xamarin

Freelancer **Hanoi, Vietnam**
Android Developer *Feb 2016 - Sep 2016*
- Fitness application using AR on Google Cardboard
- Crossword and Pet-sitter

Hanoi University of Science and Technology **Hanoi, Vietnam**
Student *July 2015 - June 2018*
- Basic embedded system projects (Example: Atmega, PIC chip, etc.)
- Science fair: Design public lighting system using Solar energy

Certificates

TOEFL
Overall: 107 - Reading: 30, Listening: 30, Writing: 26, Speaking: 21 *Nov 2021*

GRE
Quantitive: 169, Verbal: 156, Analytical Writing: 4.0 *Oct 2021*

Erasmus full scholarship **Valencia, Spain**
Exchange program to Universitat Politècnica de València *Sep 2016 - Jan 2017*

PROJECTS

Adversarial Active Learning: Generate worse-case datasets and optimize the Active Learning agent using Imitation Learning. We created a policy with high resistance to adversarial exploitation that can be used as the prior for subsequent tasks.

Active Domain Adaptation: Adapting from Source to Target Domain using Active Learning. We used the statistics extracted from the Source Domain to inform the querying decisions. Using this, we can warm-start and improve some baselines algorithms.

Sim-to-Real Data Augmentation: We proposed a hierarchical model to transform adverse weather images from the CARLA simulation to the real domain for different Autonomous Driving tasks. This method can disentangle the content and style more effectively than some baselines.

Warm-start Active Learning: Diversity strate-

gies perform better than Uncertainty at first but worsen over time. We proposed using Bandit strategies and Unsupervised learning to help the Active Learning agent make better decisions when its model is not well calibrated at the start of the task.

REFERENCES

Dr. Yasin Abbasi-Yadkori
Senior Research Scientist at Deepmind
yadkori@google.com

Dr. Rang Nguyen
VinAI Research Scientist
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Dr. Mai Nguyen Thi Phuong
Professor at Hanoi University of Science and Technology
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Dr. Tung Pham
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