Hai Nguyen

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Education

Northeastern University (NEU), USA — **Sep. 2019 - Present**
Ph.D. in Computer Science (3.93/4.0) — *Boston, Massachusetts, USA*
University of Southampton (UoS) — **2016-2017**
M.Sc. in Unmanned Aircraft Systems Design (Distinction) — *Southampton, UK*
Hanoi University of Science and Technology (HUST) — **2007-2012**
B.Sc. in Control and Automation Engineering — *Hanoi, Vietnam*

Engineering Skills

Languages: Matlab, C/C++, Python, C#
Technologies/Frameworks: PyTorch, Numpy, OpenCV, Linux, ROS, MuJoCo, Gazebo, Arduino

Work Experience

LLPR Lab & Helping Hands Lab, Northeastern University — **Sep. 2019 - Present**
Reinforcement Learning (RL) in Robotics under Partial Observability Advisors: Prof. C. Amato, Prof. R. Platt

- Utilized privileged information (state beliefs) during training for efficient policy learning
- Developed an RL hierarchical agent: memory-based top policy and memoryless bottom policy
- Scaled a Bayesian-Adaptive RL method using dropout networks

ARA Lab, University of Nevada, Reno — **Sep. 2018 - Jun. 2019**
Research Assistant in Robot Manipulation — *Advisor: Prof. Hung La*

- Implemented a CNN-based crack detector on concrete bridges
- Developed an RL mobile robot agent to open doors autonomously from RGB images
- Developed a YOLOv3-based object detector using thermal images for team CERBERUS (later won the DARPA Subterranean Challenge)

Viettel Aerospace Institute, Vietnam — **2012-2016 & 2017-2018**
Flight Software Engineer

- Developed control & path planning algorithms for an FPGA-based autopilot for fixed-wing drones
- Implemented control software allowing a quad-plane to perform fixed↔rotary-wing on flight
- Developed hardware and software verification systems using FlightGear and XPlane simulators

Selected Publications (Full Publications)

"Hierarchical Reinforcement Learning under Mixed Observability", *The 15th International Workshop on the Algorithmic Foundations of Robotics (**WAFR**), 2022*

"BADDr: Bayes-Adaptive Deep Dropout RL for POMDPs", *The 21st International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), 2022*

"Belief-Grounded Networks for Accelerated Robot Learning under Partial Observability", *The 4th Conference on Robot Learning (**CoRL**), 2020*

Awards

Chevening Scholarship, British Foreign and Commonwealth Office (2% acceptance rate) — **2016**
IMechE UAS 2016 Challenge - Runner-up & Navigation Accuracy Award — **2017**
Graduate Dean's Merit Scholarship, University of Nevada, Reno ($10k) — **2018**