An Thai **Le**

Imitation Learning · Research Intern

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Research Interest

My research interest focuses on probabilistic state estimation, learning, and planning in mobile robotics (e.g autonomous driving, mobile entities). In particular, I am motivated by the combination of decision theory and machine learning addressed by Reinforcement Learning, which focuses on learning systems that can reason a sequence of actions yielding the most informative future data.

Education

University of Stuttgart

Stuttgart, Germany

M.Sc. in Information Technology

2019 - 2021

Frankfurt University of Applied Science

Frankfurt am Main, Germany

B. Eng. in Electrical Engineering and Information Technology - German GPA: **1.5** - US GPA: 3.7/4.0

2015 - 2019

Thesis: "Approaches to solve kidnapped robot problem" [link]

Le Hong Phong High School for the gifted

Ho Chi Minh City, Vietnam

majoring in Applied Physics - GPA: **9.2/10**

2012 - 2015

Open-source Projects

RoboComp's basic components

Stuttgart, Germany

Google Season of Doc 2019

September 2019 - November 2019

- Documented robotics components such as hardware drivers, cognitive processing components, etc.
- Documented tutorial of combining these components in RoboComp ecosystem for specific robotics tasks.
- Project website: [link], Project proposal: [link].

Flexible perception pipeline manipulation for RoboSherlock

Institute of Artificial Intelligence, University of Bremen, Germany

Google Summer of Code 2018

May 2018 - August 2018

- Implemented paralleled pipelines scheduler API.
- Implemented robotics module dependencies query interface.
- Improved performance of Robosherlock pipelines by paralleling pipeline processes.
- Project: [link]. Docs: [link], Certification: [link].

Multi-modal Cluttered Scene Analysis in Knowledge Intensive Scenarios

Institute of Artificial Intelligence, University of Bremen, Germany

Google Summer of Code 2017

June 2017 - September 2018

- Implemented symmetry-based object segmentation algorithm in complex and cluttered scene.
- Implemented object segment API for grasping system.
- Project: [link]. Demo: [link] Documentation: [link]. Certification: [link].

Experience

Bosch Center for Artificial Intelligence

Renningen, Germany

Research Intern

May 2020 - Present

- Research and implement Robot learning by demonstration models

HLRS - High Performance Computing Center

Stuttgart, Germany

Student Research Assistant

November 2019 - April 2020

- Researched and implemented in C++ new parallel programming models.
- Implemented back-end functionalities in DASH project http://www.dash-project.org/
- Maintained and configure HPC systems in HLRS.

Frankfurt University of Applied Science *Frankfurt am Main, Germany*

Research Assistant *May 2019 - September 2019*

- Engaged in mobile robotics research (e.g state estimation, path planning) with Prof. Peter Nauth
- Designed and implemented novel Bayesian optimization models using Wifi signal and range sensor data for localization tasks in mobile robots, therefore enhanced the robustness of robot navigation up to 90% pose recovery rate
- Guided new student to operate robots in the Autonomous lab.

EyeQ Ltd. *Ho Chi Minh city, Vietnam*

Robotics Engineer Intern *March 2018 to August 2018*

- Collaborated and with the developer team to develop practical solutions for customers, using state-of-the-art Deep Learning models
- Developed a prototyped navigation platform that can apply in industrial warehouses

Intel Corporation *Ho Chi Minh city, Vietnam*

Product Development Engineer Intern *Jan 2017 to May 2017*

- Designed and implemented data analysis systems to process and analyze high volume unit test data in generated in manufacturing line
- Weekly validated and reported the quality of the Intel Thunderbolt Product manufacturing line
- Letter of Evaluation can be viewed in this link.

Skills

- **Language**: Python 2 & 3, C++11 & 14, Java, UNIX
- **Libraries and Frameworks**:
  - **Data Sciences**: numpy, sklearn, scipy, pandas, Tensorflow, PyTorch.
  - **Robotics**: ROS, Gazebo, openAI Gym.
  - **Others**: LaTeX, Matlab

Honors & Awards

Scholarships

- **DAAD Scholarship 2019**, German Academic Exchange Service funding for my bachelor thesis.
- **AmCham Scholarship 2017**, Best of the Bests Award: Top application score, top interview score.
- **eSilicon Scholarship 2017 & 2018**, Sunflower Mission Engineering & Technology Scholarship for Excellence

Competitions

Hackdays Rhein-Main Best solution Winner *Frankfurt am Main, Germany*

Hackdays Rhein-Main *May 2019*

- Developed an app solution for dialysis patients to plan an optimal travelling round trip via cities, where dialysis treatments are possible.
- Worked as Backend Developer to design optimized algorithms for trip planning and scheduling. Competition website: [link]

UNESCO Hackathon Vietnam Winner *Ho Chi Minh City, Vietnam*

FOSSASIA and UNESCO *October 2018*

- Developed the web application, Klima Kage to provide up-to-date climate and environmental data for journalists
- Project: [link].

Publications

Conference papers

- ***An T. Le**, M. Q. Bui, T. D. Le and N. Peter*, "D* Lite with Reset: Improved Version of D* Lite for Complex Environment," 2017 First IEEE International Conference on Robotic Computing (IRC), Taichung, 2017, pp. 160-163. doi: 10.1109/IRC.2017.52

- *T. D. Le, **An T. Le** and D. T. Nguyen*, "Model-based Q-learning for humanoid robots," 2017 18th International Conference on Advanced Robotics (ICAR), Hong Kong, China, 2017, pp. 608-613. doi: 10.1109/ICAR.2017.8023674

- *Q. H. Nguyen, T. N. P. Tran, D. D. Huynh, **An T. Le** and T. D. Le*, "Real-Time Localization and Tracking System with Multiple-Angle Views for Human Robot Interaction," 2017 First IEEE International Conference on Robotic

Computing (IRC), Taichung, 2017, pp. 316-319. doi: 10.1109/IRC.2017.53

Book chapters

- *Khiem N. Doan, **An T. Le**, Than. D. Le & Pether Nauth. (2015). "Swarm Robots' communication and cooperation in motion planning". In Dan Zang & Bin Wei(Eds.), Lecture Notes in Mechanical Engineering (Part I, Chapter 15) Mechatronics and Robotics Engineering for Advanced and Intelligent Manufacturing (pp 191-205), Springer International Publishing. DOI 10.1007/978-3-319-33581-0_15.*

- ***An T. Le** and Than D. Le* (September 26th 2018). Search-Based Planning and Replanning in Robotics and Autonomous Systems, Advanced Path Planning for Mobile Entities, Rastislav Róka, IntechOpen, DOI: 10.5772/intechopen.71663. Available here.

Workshops

- **Presented *An T. Le***, "Search-based path planning and re-planning for robotics" The first International Workshop on Automation and Robotics, Vietnamese-German University, Vietnam, 2017.