## Contact

www.linkedin.com/in/thai-nguyen-019421193 (LinkedIn)
github.com/thaiman9495 (Blog)

## Top Skills

Constructive Feedback
Communication
Mentoring

## Certifications

Python 3: Deep Dive (Part 1 - Functional)
Python 3: Deep Dive (Part 4 - OOP)

## Honors-Awards

Paris-Saclay Unviersity's scholarship
Lotte Scholarship

## Publications

Artificial-intelligence-based maintenance decision-making and optimization for multi-state component systems

Reinforcement learning for maintenance decision-making of multi-state component systems with imperfect maintenance

Weighted-QMIX-based optimization for maintenance decision-making of multi-component systems

Nonsingular fractional-order integral fast-terminal sliding mode control for underactuated shipboard cranes

AI-based maintenance planning for multi-component systems considering different kinds of dependencies.

# Thai Nguyen

PhD, AI lifelong learner
Hanoi, Hanoi, Vietnam

## Summary

I'm a curious guy interested in computer vision, GenAI and multi-agent deep reinforcement learning.

## Experience

### SAMSUNG SDS
AI Researcher
December 2023 - Present (1 year 4 months)
Quận Cầu Giấy, Hanoi, Vietnam

- GenAI projects:
+ Conduct lectures on state-of-the-art GenAI technologies (autoregressive models, GAN, score-based models, latent diffusion models)
+ Technical lead for vision inspection team to generate high fidelity industrial defect data based on inpainting algorithms
+ Technical lead for OCR team to conduct text editing task in document images aiming at preserving font and background based on scene text editing algorithms

- Defect inspection projects partnered with Samsung Electronics Vietnam:
+ Design and deploy AI-based solutions for checking defective mobile labels during packaging processes, detecting missing components and dropping screws on laptop mainboards, detecting tapes stuck in mobile phone frames
+ Both state-of-the-art computer vision technologies (e.g., YoloV10, Segformer) and digital image processing approaches are employed to construct real-time defect inspection pipelines
+ Training and deployment frameworks: mmdetection, mmsegmentation, opencv, pytorch, hugging face, onnx runtime,…

### Earable® Neuroscience
Senior Machine Learning Engineer
September 2023 - October 2023 (2 months)
Đống Đa district, Hanoi, Vietnam

- Clean IMU, PPG and EEG data
- Build IMU-based and IMU-PPG-based AI models to predict sleep stages

CRAN - Research Centre for Automatic Control

AI Researcher

November 2020 - June 2023 (2 years 8 months)

Vandoeuvre-lès-Nancy, Grand Est, France

- Constructed deep learning models for cost prediction at system level based on condition monitoring data

- Optimized maintenance decisions for large-scale industrial systems by using multi-agent deep reinforcement learning algorithms considering different kinds of component dependencies

-Implemented single- and multi-agent deep reinforcement learning algorithms (DRL and MADRL):
+ DRL: Deep Q Network (DQN), Double DQN, Dueling DQN
+ MADRL:  Two implementation versions of VDN, QMIX, Weighted QMIX:
* Centralized training and decentralized execution: Separate agent networks are used to represent agents' own Q function requiring the use of recurrent networks (LSTM, GRU) to provide the agents the ability of remembering past experiences.
* Centralized training and centralized execution: A single branching dueling network is proposed to represent all agents' Q function. The special structure of the branching network allows to achieve a linear increase in the size of deep Q-networks’ output layer to avoid the curse of dimensionality. Furthermore, it also allows creating virtual communication channels between cooperative learning agents to facilitate decision-making processes as well as to avoid the use of recurrent neural networks to memorize local transition histories that may slow down the learning process.

https://www.linkedin.com/redir/phishing-page?url=AI-PROFICIENT%2eEU

Partner

November 2020 - June 2023 (2 years 8 months)

Laboratoire IBISC, Université d’Evry, Université Paris-Saclay

Research Intern

February 2020 - September 2020 (8 months)

Évry, Île-de-France, France

- 3D reconstruction using unsynchronized heterogeneous stereo vision systems
- Multimodal matching

- Depth extraction

### Automatic control department, Hanoi University of Science and Technology

Research Assistant

September 2015 - May 2018 (2 years 9 months)

Hanoi, Vietnam

- Developed and simulated control algorithms for overhead crane systems based on the
theory of hierarchical sliding mode control
- Optimal reference trajectory generation for tracking control of overhead crane systems
- Fixed-Final-Time-Constrained Optimal Control of Nonlinear Systems Using Neural Network HJB Approach

---

## Education

### Universite de Lorraine

Doctor of Philosophy - PhD, Automatic Control, Signal and Image Processing, Computer Engineering · (November 2020 - June 2023)

### Université Paris-Saclay

Master's degree, Automatic Mobile Systems · (2019 - 2020)

### Hanoi University of Science and Technology

Engineer's degree, Automatic Control · (2013 - 2018)