Hoang Ha My Le

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EDUCATION

Case Western Reserve University (Integrated BS/MS Program) **Cleveland, OH**
Bachelor of Science – Computer Science (Artificial Intelligence) **Expected Graduation Year: 2025**
Minors: Mathematics, Electrical Engineering (Robotics), English
GPA: **3.8**/ 4.0
Master of Science – Computer Science (Artificial Intelligence) **Expected Graduation Year: 2025**
GPA**: 4.0**/ 4.0
Advisors: Prof. Soumya Ray, Prof. Zonghe Chua
Relevant Coursework: Algorithms, Artificial Intelligence, Machine Learning, Computer Vision, Robotics, Computational Perception, Linear Algebra, Convex Optimization, Statistics and Probability, Modern Robot Programming, Probabilistic Graphical Models, Electronics

PUBLICATIONS

Vision-Based Force Estimation for Minimally Invasive Telesurgery Through Contact Detection and Local Stiffness Models – *Journal of Medical Robotics Research*
Shuyuan Yang, **My H. Le**, Kyle R. Golobish, Juan C. Beaver, Zonghe Chua

Vision-Based Force Estimation for Minimally Invasive Telesurgery Through Contact Detection and Local Stiffness Models – *IROS 2023 Poster*
My H. Le, Shuyuan Yang, Kyle R. Golobish, Juan C. Beaver, Zonghe Chua

RESEARCH EXPERIENCE

Intelligent Neural Interfaces for Touch – On-going
Case Western Reserve University – Ray's AI Lab

- Developed a modified online dictionary learning algorithm for learning sparse, local feature embeddings of neural touch responses.
- Exploring different neural coding mechanisms to improve feature reconstruction of tactile stimuli (*Master's Thesis*)

General-Purpose Robots – On-going
Case Western Reserve University – Department of Computer and Data Sciences

- Conducting research on utilizing the Unitree SDK to control Unitree Go2 canine and H1 humanoid robots.
- Integrating natural language capabilities through Large Language Models (LLMs) to enable robot communication and interaction.
- Training robots using reinforcement learning algorithms for autonomous skill acquisition.
- Testing and simulating robot functionalities in Gazebo before deployment on physical hardware.

Telesurgical Robotics
Case Western Reserve University – ERIE Lab

- Integrated an eye gaze tracker for the da Vinci Surgical System with Unity to improve task execution performance using the da Vinci Research Kit
- Developed an innovative hybrid model combining a learning-based module and a contact-conditional local stiffness model for indirect force estimation in surgical scenarios, enhancing accuracy and adaptability

Graph-based Unsupervised Instance Segmentation for Medical Images
Case Western Reserve University – CSDS 465. Computer Vision

- Optimized the TransUNet model for enhanced segmentation accuracy on brain MRI scans, facilitating more reliable tumor identification
- Conducted a comprehensive analysis of the TokenCut algorithm's effectiveness in generating segmentation masks

Analyzing X-Ray Diffraction Datasets for Computer Vision Tasks by Deep Learning Model Implementation
Case Western Reserve University – Solar Durability and Lifetime Extension (SDLE) Research Center

- Refined a Convolutional Neural Network regression model and utilized the YOLO object detection algorithm to identify phase evolution during the heat treatment of Ti-6Al-4V X-ray diffraction data

- Contributed to a federated learning framework for distributed clients within a simulated environment, showcasing the capability to collaboratively improve machine learning models while maintaining data privacy and security

WORKING EXPERIENCE

Case Western Reserve University – *Department of Computer and Data Sciences* **Cleveland, OH**
Teaching Assistant **August 2024 – Present**

- Served as a Teaching Assistant for CSDS 440: Machine Learning (graduate level, 30 students), grading quizzes and assignments and analyzing performance trends to identify challenges and improve students' understanding of course concepts.

VietAI **Hanoi, Vietnam**
Teaching Assistant **May 2022 – August 2022**

- Instructed 100+ high-school and college students in "Introduction to Machine Learning" class on Python programming, linear algebra, mathematical analysis, statistics and probability, and fundamental machine learning frameworks
- Prepared interactive course materials with a heuristic approach to learning to maximize students' performance and improve retention of learned information

Hanoi University of Science and Technology – *Data Science Laboratory* **Hanoi, Vietnam**
Research Assistant **May 2022 – August 2022**

- Conducted research on continual learning and probabilistic graphical models
- Implemented machine learning algorithms in supervised learning and unsupervised learning using Python libraries and frameworks

COMMUNITY INVOLVEMENT

CWRUbotix – *MATE ROV Software Team*

- Leveraged ROS 2 libraries and the Gazebo simulator to program underwater robots.
- Organized outreach workshops for Girl Scouts and Cub Scouts.

2024-2025 CDS (Computer and Data Sciences Department) Faculty Search Committee

- Reviewed and evaluated applications to assess research, teaching, and service qualifications of CDS faculty candidates.

Vietnamese Student Association – Big/Little Program

- Mentored underclassmen (primarily freshmen), helping them adapt to college life and introducing them to Vietnamese traditions.

Toastmasters International

- Developed public speaking, leadership, and communication skills by participating in regular meetings and events.
- Delivered speeches on a wide range of topics, giving and receiving constructive feedback to refine presentation abilities.

Undivided - CWRU's Hip-Hop Dance Crew

- Performed at prominent university events, including The Homecoming Tailgate 2023.

University Chorale - CWRU's Treble Vocal Ensemble

- Participated in weekly rehearsals and performed at university events, showcasing vocal skill and musical collaboration.

SKILLS

- **Programming Languages:** Python, Java, C++, HTML/CSS, JavaScript, SQL, R
- **Tools:** PyTorch, TensorFlow, SciPy, Scikit-learn, NumPy, OpenCV, Gym, Pandas, MySQL, Keras, ROS 2, CMake, Gazebo, Docker
- **Project Management/ Version Control:** Git, GitHub, Bitbucket, Asana, Trello

HONORS AND AWARDS

- **Dean's Honors List, Dean's High Honors List** – CWRU, 2021 - present
- **SOURCE – SURES Summer Research Scholar** – CWRU, 2023