

Chuong Le | Robotics Engineer

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Education

Doctor of Philosophy of Computer Science and Engineering (CSE)

Ongoing

University of Nevada, Reno (UNR)

DoD SMART Scholarship, IROS 2022 Best Application Award Finalist

Bachelor of Computer Science and Engineering

2017 - 2021

University of Oklahoma (OU)

Ernest W. Reynolds Endowed Scholarship, Eagle Scout, 1st place B.E.S.T. Robotic Award & Robotic competition

Experience

Research Assistant - Advanced Robotics and Automation Lab (ARA Lab)

Jan 2022 - Present

- Develop a light-weight deep CNN for real-time rebar [J1], steel defect [C3], and spalling [C4] detection.
- Developed CAIS: Culvert Autonomous Inspection Robotic System. [C7]

Student Intern - U.S. Army Corps of Engineers Research and Development Center

Summer 2023

- Implement a multi-camera auto-adjustment ROS driver for 3D mapping and inspection on the Dambot.
- Node optimize light brightness, shutter speed, gain, light level for high quality camera image has a vignette correction filter [6].

Teaching - University of Nevada, Reno

Jan. 2022 - Jun. 2023

• CPE470/670: Autonomous Mobile Robots. Spring 2022. TA || CPE201: Digital Design. Fall 2022. TA || CS202: Computer Science II. Spring 2023. TA || CS455/655: Mobile Sensor Networks. Spring 2024. **Instructor**

Student Researcher - ARA Lab

Winter 2019

- Helped build and calculate a steel inspection robot, able to traverse through steel surfaces with Solidworks.
- Create a control system with differential wheel inverse kinematic for the robot with Arduino and ROS [C2].

Research Education for Undergraduates (REU) Student - ARA Lab

Summer 2018, 2019

- Developed a centralized dirt-driven multi-robotic system for full coverage cleaning with A* planner, SLAM Lidar, and ROS [C1].

Publications

Conferences:

[C7] **C. P. Le***, P. Walunj, A. Nguyen, Y. Zhou, T. B. Nguyen, T. Nguyen, A. Netchaev, H. La. *CAIS: Culvert Autonomous Inspection Robotic System*. **2024 IROS**. Oct 14-18, 2024. Abu Dhabi, UAE.

[C6] A. Nguyen, **C. P. Le***, P. Walunj, T. N. Do, A. Netchaev, H. La. *A Multi-model Fusion of LiDAR-inertial Odometry via Localization and Mapping*. **2024 IROS**. Oct 14-18, 2024. Abu Dhabi, UAE.

[C5] **C. P. Le***, C. Ellison, S. Bunkley, H. La, A. Netchaev. *A Real-time Multi-Camera Auto-Adjustment Framework for Infrastructure Inspections*. **2024 SII**. Jan 8-12, 2024. Ha Long, Vietnam.

[C4] T. Yasmin, **C. P. Le***, H. M. La. *Deep Architecture Based Spalling Severity Detection System Using Encoder-Decoder Networks*. **2022 ISVC**. Oct 3-5, 2022. San Diego, CA, USA.

[C3] H. Ahmed, S. Nguyen, D. La, **C. P. Le***, H. M. La. *Multi-Directional Bicycle Robot for Bridge Inspection with Steel Defect Detection System*. **2022 IROS**. Oct 23-27, 2022. Kyoto, Japan. (**Best Application Award Finalist**).

[C2] H-D. Bui, S. T. Nguyen, U-H. Billah, **C. Le***, A. Tavakkoli, H. M. La. *Control Framework for a Hybrid-steel Bridge Inspection Robot*. **2020 IROS**. Oct 25 - 29, 2020. Las Vegas, Nevada. USA.

[C1] **C. Le***, A. Q. Pham, H. M. La, D. Feil-Seifer. *A Multi-Robotic System for Environmental Dirt Cleaning*. **2020 SII**. Jan 12-15, 2020. Hawaii, USA.

Journals:

[J1] H. Ahmed, **C. P. Le***, H. M. La. *Pixel-level classification for bridge deck rebar detection and localization using a multi-stage deep encoder-decoder network*. **Developments in the Built Environment**. Elsevier Vol. 14. 2023.

Projects

Multi-Agent Flocking Formation Control

- Implemented a mobile sensing network in Quasi-Lattice formation with dynamic/static target while the multi-robot formation avoids obstacles. Implemented from this [paper](#). *Contact for code. Unavailable to the public due to it being a class project.*

Technical Strengths (w/ Project Links)

- Relevant Course Work:** AI, Machine Learning, Deep Learning, Data Structure, Database
- Programming Languages:** C++, Python, Java, Matlab, Javascript, HTML, CSS, SQL, R

- **Development:** Linux, Git, Robotics/ROS, Pytorch/Tensorflow, CAD (Solidworks/Inventor), Embedded System, LaTeX
- **Others Relevant:** Green Belt Six Sigma Certified, Conversational Vietnamese

Volunteer

Consumer Electronic Shows (CES) - USDOT Exhibitor

Jan. 5-8 2020

- Showcased ARA Lab's different Steel Bridge Inspection Robots
- Highlighting how these inspection robots will help the DOT improve the precision and accuracy of bridge damage reports.

Mentor - FIRST Tech Challenge

Spring 2022

- Worked with M.A.K.E. and F.I.R.S.T. Nevada to create a robot team at Hug High School due to its lack of resources to offer hands-on STEM opportunity and guide students to build and program a robot for competition

Teaching Volunteer - Technology Education and Literacy in Schools (TEALS)

Fall 2021

- Helped high school teachers teach CS classes 3 times a week.
- Tracked the student's progress and planned upcoming lessons using the curriculum developed by Carnegie Mellon University