Viet-Anh Le

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Research Interest

- Distributed Model Predictive Control
- Learning for Dynamics and Control
- Multi-agent Systems
- Robotics and Autonomous Systems

Education

University of Delaware — Newark, DE, USA
Ph.D. in Mechanical Engineering — Aug. 2021–Present
Advisor: Dr. Andreas Malikopoulos, Associate Professor, Department of Mechanical Engineering

Northern Arizona University — Flagstaff, AZ, USA
M.Sc. in Informatics, GPA: 4.00/4.00 — Aug. 2019–May 2021
Advisor: Dr. Truong X. Nghiem, Assistant Professor, School of Informatics, Computing, and Cyber Systems

Hanoi University of Science and Technology — Hanoi, Vietnam
B.Sc. in Control Engineering and Automation (Talented Program[1]), GPA: 3.44/4.00 — Aug. 2014–Jun. 2019

Professional Experience

Northern Arizona University — Flagstaff, AZ, USA
Graduate Research Assistant at Intelligent Control System Laboratory — Aug. 2019–May. 2021

- Learning-based Model Predictive Control with Gaussian Processes
- Adaptive Sampling for Mobile Robotic Sensor Networks

Vietnam Maritime University — Haiphong, Vietnam
Undergraduate Research Intern at School of Mechanical Engineering — Sep. 2017–Mar. 2019

- Applications of modern control theories in designing digital controllers for crane systems
- Research, design and manufacture of a floating crane model used for research in the laboratory

Publications

[1] **V.-A. Le**, L. Nguyen, and T. X. Nghiem, "Multi-Step Predictions for Adaptive Sampling using Proximal ADMM", *TechRxiv preprint*, 2021.

[2] **V.-A. Le** and T. X. Nghiem, "Distributed Experiment Design and Control for Multi-agent Systems with Gaussian Processes", *arXiv preprint arXiv:2103.14156*, 2021.

[3] **V.-A. Le** and T. X. Nghiem, "A Receding Horizon Approach for Simultaneous Active Learning and Control using Gaussian Processes", in *2021 IEEE Conference on Control Technology and Applications (CCTA)*, accepted.

[4] **V.-A. Le**, L. Nguyen, and T. X. Nghiem, "An Efficient Adaptive Sampling Approach for Mobile Robotic Sensor Networks using Proximal ADMM", in *2021 American Control Conference (ACC)*, accepted.

[5] **V.-A. Le**, L. Nguyen, and T. X. Nghiem, "ADMM-Based Adaptive Sampling Strategy for Nonholonomic Mobile Robotic Sensor Networks", *IEEE Sensors Journal*, vol. 21, no. 13, pp. 15 369–15 378, 2021.

[6] **V.-A. Le** and T. X. Nghiem, "Gaussian Process Based Distributed Model Predictive Control for Multi-agent Systems using Sequential Convex Programming and ADMM", in *2020 IEEE Conference on Control Technology and Applications (CCTA)*, IEEE, 2020, pp. 31–36.

[1] An undergraduate program for approximately top 100 students in five majors

[7] T. X. Nghiem, T.-D. Nguyen, and **V.-A. Le**, "Fast Gaussian Process based Model Predictive Control with Uncertainty Propagation", in *2019 57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, IEEE, 2019, pp. 1052–1059.

[8] **V.-A. Le**, X. H. Le, L. Nguyen, and X. M. Phan, "An efficient adaptive hierarchical sliding mode control strategy using neural networks for 3D overhead cranes", *International Journal of Automation and Computing*, vol. 16, no. 5, pp. 614–627, 2019.

[9] X. H. Le, **V.-A. Le**, and L. Nguyen, "Adaptive fuzzy observer based hierarchical sliding mode control for uncertain 2D overhead cranes", *Cyber-Physical Systems*, vol. 5, no. 3, pp. 191–208, 2019.

[10] V. T. Nguyen, T. K. D. Ha, **V.-A. Le**, *et al.*, "Modeling and integral hierarchical sliding-mode control for 2D ship-mounted crane", in *2019 First International Symposium on Instrumentation, Control, Artificial Intelligence, and Robotics (ICA-SYMP)*, IEEE, 2019, pp. 82–85.

[11] **V.-A. Le**, X. H. Le, D. T. Vu, V. T. Pham, A. T. Le, and M. C. Hoang, "Designing an adaptive controller for 3D overhead cranes using hierarchical sliding mode and neural network", in *2018 International Conference on System Science and Engineering (ICSSE)*, IEEE, 2018, pp. 1–6.

[12] A. T. Le, M. C. Hoang, V. T. Pham, C. N. Luong, D. T. Vu, and **V.-A. Le**, "Adaptive neural network sliding mode control of shipboard container cranes considering actuator backlash", *Mechanical Systems and Signal Processing*, vol. 112, pp. 233–250, 2018.

Fellowships and Awards

- June. 2021: Student Travel Award by IEEE Control Systems Society (CSS) for the 2021 IEEE Conference on Control Technology and Applications (CCTA)
- May. 2021: Student Registration Support for the 2021 American Control Conference (ACC)
- Aug. 2020: Student Travel Award by IEEE Control Systems Society (CSS) for the 2020 IEEE Conference on Control Technology and Applications (CCTA)
- Aug. 2019: Northern Arizona University's Presidential Fellowship
- Aug. 2018: Odon Vallet's Scholarship (established by Prof. Odon Vallet from Sorbonne University) for undergraduate students
- Jun. 2018: Conference Travel Award by Vietnam's National Foundation for Science and Technology Development (NAFOSTED) for the 2018 IEEE International Conference on System Science and Engineering (ICSSE)
- Apr. 2015: Gold Medal in the 2015 Vietnam's National Mathematical Olympiad for undergraduate students

Technical Skills

- Programming languages: Python, Julia, MATLAB, C/C++, R.
- Software/Tools: Git, LaTex, Robot Operating System (ROS), Labview.

Academic Memberships

- Student Member, IEEE 2020–Present
- Student Member, IEEE Control System Society 2020–Present