

## VU ANH LE

---

Box 1091, Beloit College Mail Center, 700 College Street • Beloit, Wisconsin 53511 • csplevuanh@gmail.com  
[\[Personal Website\]](#) • [\[LinkedIn\]](#) • [\[ORCID\]](#)

### RESEARCH INTERESTS & SKILLS

**Research Interests:** Algorithm Design, Complexity Theory, Theory of Machine Learning

**Programming Languages and Software:** Python, C++, Java, MATLAB, R, L<sup>A</sup>T<sub>E</sub>X, QGIS, PostGIS, ArcGIS

### EDUCATION

**Beloit College**

Beloit, Wisconsin

*Bachelor of Science, Mathematics*, GPA: 3.74/4.00

*Aug 2021 - May 2025*

*Relevant Coursework:* Mathematical Statistics, Differential Equations, Complex Analysis, Topology, Algorithm Design and Analysis, Data Mining

### ARTICLES AND PREPRINTS

1. **Le, Vu Anh**, and Dik, Mehmet, “How Analysis Can Teach Us the Optimal Way to Design Neural Operators,” in *Proceedings of International Mathematical Sciences*, Nov 2024 (Accepted for publication, the full paper version is available on [arXiv](#))
2. **Le, Vu Anh**, and Dik, Mehmet, “A Mathematical Analysis of Neural Operator Behaviors,” in [arXiv](#), Oct 2024
3. **Le, Vu Anh**, Wainwright, Haruko, Gonzalez-Raymat, Hansell, and Eddy-Dilek, Carroll, “Machine Learning Algorithms to Assess Site Closure Time Frames for Soil and Groundwater Contamination,” in [arXiv](#), Nov 2024
4. Vu, Thi Phuong Thao, and **Le, Vu Anh**, “Computational Modelling of Climate Change Impacts on Flood Inflows Using Remote Sensing and SAWT,” in [EarthArXiv](#), Oct 2024
5. Vu, Thi Phuong Thao, Dang, Truong Giang, and **Le, Vu Anh**, “Reliability Assessment of Land Subsidence Monitoring Results Using PSI Technique in Ho Chi Minh City, Vietnam,” in *International Journal of Environmental Studies*, March 2024
6. Le, Quoc Hung, Vu, Thi Tuyet, Vuong, Trong Kha, and **Le, Vu Anh**, “Applying Technical Regulations of IPCC for Landcover Data used to Estimate Carbon Emission in Vietnam,” in *Journal of Science on Natural Resources and Environment*, March 2020

### RESEARCH EXPERIENCE

**Google Research**

Remote

*Student Researcher, B.S.*

*Aug 2024 - Present*

- **Research Advisors:** [Jake Garrison \(Google Research\)](#) and [Prof. Mehmet Dik \(Beloit College\)](#).
- Developed a mathematical framework for analyzing the behaviors of neural operators. That framework provided theoretical guarantees on stability, exponential convergence, and generalization. Detailed results in: [1](#) and [2](#).
- Applied the proposed framework in designing a case study model for solving complex partial differential equations. Compared with the state-of-the-art works e.g. DeepONet, it requires **15% fewer epochs**.

**Massachusetts Institute of Technology**

Cambridge, Massachusetts

*Research Assistant, Department of Nuclear Science and Engineering*

*Aug 2023 - Present*

*Intern, MIT Summer Research Program - General*

*June 2024 - Aug 2024*

- **Research Advisor:** [Prof. Haruko Murakami Wainwright](#).
- Integrated two machine learning models (i.e., Random Forest and Bidirectional LSTM models) in the contaminant monitoring software for nuclear material safety supervision.
- Achieved **97.7% accuracy** in predicting the time taken for analyte concentration to drop to safety levels. Detailed results in: [3](#).

**Vietnam's Ministry of Natural Resources and Environment**  
*Research Assistant and Compliance Reporter, Remote Sensing Department*

Hanoi, Vietnam  
*April 2020 - Present*

- **Research Advisor: Dr. Le Quoc Hung.**
- Adopted SAR data and developed standardized software tools integrating computational models for monitoring human-induced land deformation. The most recent project achieved a **1-millimeter resolution** in generated maps. Detailed results in: [4](#), [5](#), and [6](#).
- Presented the results to the government and National Assembly on the effects of the deformation processes, hydroelectric power, and mining operations.

**University of Tokyo**  
*Summer Intern, Graduate School of Frontier Sciences*

Kashiwa, Chiba, Japan  
*April 2022 - Aug 2022*

- **Research Advisor: Prof. Frith Martin.**
- Developed a sorting algorithm using dynamic programming and hidden Markov models (HMMs) to identify regions responsible for certain disease mechanisms.
- Implemented maximum likelihood estimation for parameter tuning in HMMs for efficient disease mechanism detection.

### SELECTED AWARDS AND HONORS

<b>Presidential Scholarship</b> , Beloit College, Awards 48,000 USD annually	<i>Aug 2021 - May 2025</i>
<b>Board of Trustees Grant</b> , Beloit College, Awards 10,000 USD annually	<i>Aug 2021 - May 2025</i>
<b>Dean's list</b> , Beloit College	<i>Every semester</i>
<b>MIT Summer Research Program</b> , Massachusetts Institute of Technology, Fully funded	<i>June 2024</i>
<b>Weissberg Human Rights Grant</b> , Weissberg Foundation, Awards 1,000 USD	<i>March 2024</i>
<b>Semifinalist</b> , InSPiR2eS Global Pitching Research Competition 2023 (IGPRC 2023)	<i>Jan 2024</i>
<b>Station1 Frontiers Fellowship</b> , Massachusetts Institute of Technology, Awards 13,500 USD	<i>June 2023</i>
<b>National Research Grant</b> , Vietnam's Ministry of Finance, Awards 10,000 USD	<i>Jan 2023</i>
<b>Friends of UTokyo Scholarship</b> , University of Tokyo, Awards 4,000 USD	<i>April 2022</i>

### SELECTED PRESENTATIONS

1. "Mathematical Foundations of Neural Operators."
  - National Conference on Undergraduate Research 2025, *Pittsburgh*, April 2025
  - 38th Annual Pi Mu Epsilon Undergraduate Regional Conference, *St. Norbert College*, Nov 2024
  - Beloit and Beyond Conference, *Beloit College*, Nov 2024
2. "Machine Learning Algorithms to Assess the Site Closure Time Frame for Soil and Groundwater Contaminated Sites."
  - AGU Annual Meeting 2024 at Washington D.C., *American Geophysical Union*, Dec 2024
  - Midstates Physical Sciences, Mathematics and Computer Science Undergraduate Research Symposium, *University of Chicago*, Nov 2024
  - Beloit and Beyond Conference, *Beloit College*, Nov 2024
  - MIT Summer Research Program Conference, *Massachusetts Institute of Technology*, Aug 2024

### ADDITIONAL EXPERIENCE

**Legal Initiatives for Vietnam**  
*Paralegal Assistant*

Remote  
*Dec 2023 - Present*

- Conducted legal research on the current political strategies and policies implemented by Vietnamese authorities.
- Published opinions on critical political issues via the affiliated newspaper "Luat Khoa Tap Chi."

**Beloit Math and Computer Science Club**  
*Co-founder and President*

Beloit, Wisconsin  
*Aug 2021 - May 2023*

- Updated students on field-related opportunities such as research projects, internships, and employment.
- Set preparatory sessions for academic competitions like the Mathematical Contest in Modeling and Putnam.