

VU ANH LE

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

EDUCATION

Beloit College

Beloit, WI

Bachelor of Science, Mathematics. Grade: 4.0/4.0

Relevant Coursework: Introduction to Proofs, Calculus I/II, Discrete Mathematics, Linear Algebra, Mathematical Statistics, Differential Equations, Complex Analysis, Mathematics Colloquium, Object-oriented Programming, Data Structures and Algorithms, University Physics I/II, General Chemistry, Human Biology

PUBLICATIONS

1. 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." *International Journal of Environmental Studies* 81, no. 2 (March 3, 2024): 881–95. [\[Manuscript URL\]](#)
2. Vu, Thi Phuong Thao, Le, Vu Anh, and Kalibbala, Martin. "Estimating the impact of climate change on flood-flow patterns into the Ban Chat Reservoir, Northern Vietnam." *Under peer-review*. [\[Manuscript URL\]](#)

AWARDS AND HONORS

Presidential Scholarship , Beloit College, Awards 42,000 USD annually	<i>Aug 2021 - May 2025</i>
Board of Trustees Grant , Beloit College, Awards 10,000 USD annually	<i>Aug 2021 - May 2025</i>
Dean's list , Beloit College	<i>Every semester</i>
MIT Summer Research Program , Massachusetts Institute of Technology	<i>June 2024</i>
Semi Finalist , InSPiR2eS Global Pitching Research Competition 2023 (IGPRC 2023)	<i>Jan 2024</i>
Station1 Frontiers Fellowship , Massachusetts Institute of Technology, Awards 13,500 USD	<i>June 2023</i>
National Research Grant , Vietnam's Ministry of Finance, Awards 10,000 USD	<i>Jan 2023</i>
Friends of UTokyo Scholarship , The University of Tokyo, Awards 4,000 USD	<i>Jun 2022</i>

RESEARCH EXPERIENCE

Massachusetts Institute of Technology

Cambridge, MA

Incoming Intern, Summer Research Program - General

June 2024 - Aug 2024

- Engage in the program's events and advising.
- Contribute to the ALTEMIS project co-led by Dr. Haruko Wainwright. Expected to utilize established PyLEnM package in monitoring local watershed.

Massachusetts Institute of Technology

Remote

Research Assistant, Department of Nuclear Science and Engineering

Aug 2023 – Present

- *Research Advisor*: Dr. Haruko Wainwright.
- Derived indicator features from water samples at a Department of Energy-owned Superfund site around Savannah River National Laboratory, focusing on isotopes Iodine-129 and Strontium-90 across 200+ wells.
- Primarily used the Pylemn package for curating the original dataset, plotting trends of analyte concentrations, extrapolating 50+ years regression, building a data frame table for results, and visualizing the progress of radioactive waste treatments across different wells in real-time maps using NASA satellite imagery.
- Employed random forest regression to gain insights from the heterogeneity of analyte concentrations. Utilized a combined CNN-LSTM model with the attention mechanism to perform near-term forecasting on the effects of the well features on the decrease in contaminant levels.

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.
- Established image networks, executed interferometric processing, and formulated models for primary and secondary inverse displacement to generate maps. The acquired maps were then validated with coefficient indices. The tools used include Python and QGIS with the Geopandas library.
- Compiled reports for submission to the Vietnamese legislature, specifically to the Committee on Science, Technology, and Environment of the Vietnamese National Assembly, and to local authorities, focusing on land deformation and the impact of corporate environmental compliance and regulations.

Massachusetts Institute of Technology

Summer Fellow, Station1 Frontiers Fellowship

Remote

June 2023 - Aug 2023

- Participated in Station 1 Frontiers Fellowship, a summer program involving a socially-directed research design curriculum taught by instructors at the MIT Department of Materials Science and Engineering.
- Utilized the ReciPe model to quantify the carbon intensity of biodegradable materials' life cycle using Python and supporting libraries Brightway2. Found that per ton of bioplastics unit recycled from renewable natural gas yields a decrease of 4.75 kg in carbon emissions compared to PVC.
- Collaborated with the project's industrial partner, Corumat Inc., in collecting data related to carbon emissions.

University of Tokyo

Summer Intern, Graduate School of Frontier Sciences

Kashiwa, Chiba, Japan

April 2022 - Aug 2022

- Participated in the University of Tokyo Summer Internship Program at Kashiwa 2022.
- Completed a research project focused on the development of a sorting algorithm for identifying orthologous regions in genomic datasets.
- Detected, filtered, and classified abnormalities in genomic datasets to train ML models.
- Utilized hidden Markov chain principles to enhance the algorithm's performance.

Beloit College

Research Assistant, Department of Biology

Beloit, WI

Aug 2021 - May 2023

- *Research Advisor:* Dr. Rachel Bergstrom.
- Participated in the research partnership between Beloit College and the University of Wisconsin-Madison.
- Completed a project on optimizing an efficient machine-learning algorithm for seizure detection, utilizing EEG datasets from the University of Wisconsin's Department of Neurosurgery.
- Detected, filtered, and classified abnormalities in EEG datasets to train ML models.
- Applied continuous wavelet transform principles to transform 2-dimensional EEG datasets into a spectrogram model.

VOLUNTEER AND OUTREACH

Legal Initiatives of Vietnam

Paralegal Assistant

Remote

Aug 2021 - Present

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

Beloit Math and CS Club

Co-founder and President

Beloit, WI

Aug 2021 - Present

- Connected students to faculty and influencers in the Math and Computer Science field.
- Updated students on field-related opportunities such as research projects, internships, and employment.
- Set preparatory sessions for undergraduate competitions like the Mathematical Contest in Modeling and Putnam

Beloit College

Division III Athlete, Cross Country Team

Beloit, WI

Aug 2021 - Dec 2022

PRESENTATIONS

1. Le, Vu Anh. "Reliability Assessment of Land Subsidence Monitoring Results Using PSI Technique in Ho Chi Minh City, Vietnam."
 - Midstates Physical Sciences, Mathematics and Computer Science Undergraduate Research Symposium, *University of Chicago*, Nov 2023
 - Beloit College STEM Poster Session, *Beloit College*, Sep 2023
2. Le, Vu Anh. "Life Cycle Assessment of Biodegradable Plastic Packaging Subject to Comprehensive Organic Sorting."
 - Midstates Biological Sciences and Psychology Undergraduate Research Symposium, *Washington University at St. Louis*, Nov 2023
 - American Physician Scientist Association - Midwest Regional Meeting, *Saint Louis University School of Medicine*, Oct 2023
 - Station1 Frontier Fellowship Capstone Poster Event, *Station1*, Aug 2023
 - Beloit College STEM Poster Session, *Beloit College*, Sep 2023

SKILLS & INTERESTS

Research Interests: Computational modeling, automation of scientific discovery, environmental governance

Programming and Software: Python, MATLAB, R, L^AT_EX, QGIS, PostgreSQL, PostGIS, ArcGIS

Libraries and Frameworks:

- **Python:** NumPy, SciPy, Matplotlib, TensorFlow/PyTorch, Pandas, SimPy, geopandas, shapely, Fiona, SEABORN, rasterio, Brighway2, PyLenM, scikit-learn, folium
- **MATLAB:** Simulink
- **R:** ggplot2, dplyr, tidyr

REFERENCES

Haruko Murakami Wainwright

Mitsui Career Development Professor in Contemporary Technology

Assistant Professor of Nuclear Science and Engineering

Office 217, Building 24, 60 Vassar St

Massachusetts Institute of Technology, Cambridge, MA 02139

E-mail: hmwainw@mit.edu

Le Quoc Hung

Deputy Director General

Office 210, Building 3, 83 Nguyen Chi Thanh

Vietnam's Ministry of Natural Resources and Environment, Hanoi, VN 100000

E-mail: lqhung_cvt@monre.gov.vn / quochungrs@gmail.com

Mehmet Dik

Visiting Professor of Mathematics

Room 214, Sanger Center for the Sciences, 700 College St

Beloit College, Beloit, WI, 53511

Chair, Department of Mathematics, Computer Science & Physics

Room 302F, Starr Science Center, 5050 E State St

Rockford University, Rockford, IL, 61108

E-mail: dikm@beloit.edu