VU ANH LE

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EDUCATION

Beloit College Beloit, WI
Bachelor of Science, Mathematics; Public Health. Grade: 4.0/4.0
Relevant Coursework: Introduction to Proofs, Calculus I/II, Linear Algebra, Mathematical Statistics, Differential Equations, Object-oriented Programming, Human Biology, Anatomy, Histology and Pathology, General Chemistry, University Physics I/II, Introduction to Psychology, Psychological Disorders, Life-span Developmental Psychology, Sustainable Cities, International Political Economy & Environment, Introduction to Public Health, Senior Public Health Capstone

Massachusetts Institute of Technology Cambridge, MA
Summer Research Program - General. Grade: In progress
Relevant Coursework: Data Science Machine Learning Course (DSML - SOP), Responsible and Ethical Conduct of Research Certificate (RECR)

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]**

3. Le, Vu Anh, Zoro, David, Waggoner, Mike, and Ortiz, Christine. "Life Cycle Assessment of Biodegradable Plastic Packaging Subject to Comprehensive Organic Sorting." *Article manuscript in progress.* **[Manuscript URL]**

AWARDS AND HONORS

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

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 Civil and Environmental 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 the Random forest regression through the scikit-learn library to identify the variables influencing the decrease of contaminant concentrations. The results were later applied for supervision services with the local and South Carolina state legislature.

Vietnam's Ministry of Natural Resources and Environment Hanoi, Vietnam
Research Assistant and Compliance Reporter, Remote Sensing Department *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 Remote
Summer Fellow, Station1 Frontiers Fellowship *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 Kashiwa, Chiba, Japan
Summer Intern, Graduate School of Frontier Sciences *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 Beloit, WI
Research Assistant, Department of Biology *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 Remote
Paralegal Assistant *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 Beloit, WI
Co-founder and President *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 Memorial Hospital Beloit, WI
Emergency Room Volunteer *Aug 2021 - Present*
- Offer greetings, encouragement, and assistance as appropriate to those under treatment.
- Escort and navigate patients and visitors, rounding patient rooms every hour.
- Sanitize and refill stock supplies for the ER waiting rooms.

Shiloh Eye Care Garland, TX
Front-End Ophthalmic Assistant *Jan 2022 - Apr 2022*
- Reviewed patient charts to ensure completeness and accuracy of information.
- Performed testing required by the type of exam scheduled, patient complaint, and history.
- Took an ocular and systemic history and accurately recorded visual acuity.

Beloit College Beloit, WI
Division III Athlete, Cross Country Team *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, QGIS, PostgreSQL, PostGIS, ArcGIS
Libraries and Frameworks:

- ***Python:*** NumPy, SciPy, Matplotlib, TensorFlow/PyTorch, Pandas, SimPy, geopandas, shapely, Fiona, SEABORN, rasterio, Brigthway2, PyLEnM, sscikit-learn, folium
- ***MATLAB:*** Simulink
- ***R:*** ggplot2, dplyr, tidyr

REFERENCES

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