

LE-HUYNH TRUC-LY

I have over five years of experience in data analysis across projects spanning environmental science, health science, and biology. My passion lies in data analysis, visualization, automation, and creating digital tools for research. This very CV was even crafted using code.



PROJECTS

2023
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Present

• Toward personalized acute myeloid leukemia (AML)

Biotech Research & Innovation Centre (BRIC), University of Copenhagen

📍 Copenhagen, Denmark

- Skills used — Bioinformatics, R, RMarkdown, Git, GNU Make
- Analysed Mass Spectrometry-based Proteomics data to identify novel druggable oncogenic signaling molecules in a genetically engineered AML mouse model
- Analyzing Mass Spectrometry-based Proteomics data from AML patients to identify a broad spectrum of relevant druggable key signalling molecules that can be targeted in a clinical setting for guided personalized AML treatment

2021
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2022

• Development of predictive biomarker spectrum for neuropsychiatric systemic lupus erythematosus (NPSLE)

Graduate School of Biomedical Sciences, Nagasaki University

📍 Nagasaki, Japan

- Skills used — Bayesian Modelling, R, SAS, RMarkdown, LaTeX, Git, GNU Make
- Estimated the cutoff concentration of anti-suprabasin antibodies in a huge patient database to predict NPSLE, through utilizing a novel Bayesian model
- Implemented reproducible workflow for data analysis and data visualization

2020
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2023

• Bayesian predictive model for toxic cyanobacteria occurrence from eutrophication and climate data

Graduate School of Engineering, Nagasaki University

📍 Nagasaki, Japan

- Skills used — Bayesian Modelling, R, JAGS, Stan, RMarkdown, LaTeX, Git, GNU Make
- Developed Bayesian model addressed zero-inflation issue in cyanobacterial data, predicting presence probability, abundance, and WHO alert level exceedance for toxic cyanobacteria
- Improved overall modelling efficiency through the implementation of Parallel Processing techniques
- Automated the data analysis and reporting system using GNU Make, R, and Rmarkdown

CONTACT INFO

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SKILLS

Data Science: Frequentist and Bayesian Inference, Bayesian Modelling, Biostatistics, Bioinformatics (Proteomics data analysis)

Programming: R (advanced: published 1 package), Python, SAS, JAGS, Stan

Reproducible Report: Markdown/RMarkdown, LaTeX

DevOps: Git, GNU Make, Docker

Visualization: ggplot2, plotly, leaflet, Shiny

Laboratory: Molecular Biology, Molecules Analysis, Water Quality Analysis

Languages: Vietnamese (native), English (fluent), Japanese (elementary)



EDUCATION

2018
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2023

- **Doctor of Philosophy - PhD in Water and Environmental Science**
Nagasaki University

📍 Nagasaki, Japan

- Dissertation: Statistical Investigation into the Effects of Climate and Eutrophication on the Occurrence of Cyanobacteria in Small Ponds and Reservoirs

2016
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2018

- **Master of Engineering - MEng in Water and Environmental Engineering**
Nagasaki University

📍 Nagasaki, Japan

- Thesis: Statistical Analysis on the Relationship among Environmental Factors, Microcystin Synthesis Gene, and Microcystin Degradation Gene

2012
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2016

- **Bachelor of Science - BS in Environmental Engineering Technology**
Vietnam National University – Ho Chi Minh City (VNU-HCM) University of Science

📍 Ho Chi Minh City, Vietnam

- Thesis: Research on Sewage Sludge Dewatering System using Solar Energy



WORK EXPERIENCE

2021
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Present

- **Independent Data Analyst**
Self-employed at lehuynh.rbind.io

- Services: Reproducible data analysis (in environmental science, health science, biology, bioinformatics), data visualization, cartography, data communication, consulting, R package development
- Tools: R, SAS, Python, ggplot2, plotly, leaflet, Shiny

2023

- **Project Researcher**
Water Treatment Laboratory, Nagasaki University (Japan)

2018
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2019

- **Research Assistant**
Biological Treatment and Ecological Engineering Laboratory, Nagasaki University (Japan)

2017
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2019

- **Technical Assistant**
Biological Treatment and Ecological Engineering Laboratory, Nagasaki University (Japan)

2018
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2020

- **Graduate Teaching Assistant**
Graduate School of Engineering, Nagasaki University (Japan)

ADDITIONAL INFORMATION

● Honours and awards

- Planetary Health Research Fellowship, Nagasaki University, Japan (2022 – 2023)
- Asian Student Foundation Scholarship, Asian Student Foundation, Japan (2017 – 2019)
- Full scholarship for Master's students, Nagasaki University, Japan (2016 – 2018)
- Monbukagakusho Honors Scholarship for International Students, Japan Student Services Organization (JASSO), Japan (2016 – 2017)
- The CHEER for Viet Nam Scholarship Award for Innovation and Creativity, CHEER for Viet Nam Organization, USA (2015)

● Community engagement

- Translated R cheat sheets (Git & GitHub, gtsummary, RStudio IDE) into Vietnamese (under review)

● Publications

- Hoang, T. T. T., Ichinose, K., Morimoto, S., Furukawa, K., **Le-Huynh, T.-L.**, Kawakami, A. (2022). Measurement of anti-suprabasin antibodies, multiple cytokines and chemokines as potential predictive biomarkers for neuropsychiatric systemic lupus erythematosus. *Clinical Immunology*, 237(March), 1–8.
- Angalika, M. W. S., Suzuki, S., **Le-Huynh, T.-L.**, Itayama, T., Tanaka, W. (2022). Assessing nutrient budget of ungauged catchment using intermittent water quality markers. *Maejo International Journal of Energy and Environmental Communication*, 4(3), 1–10.
- **Le-Huynh, T.-L.**, Iwami, N., Whangchai, N., Gutierrez, R., Shimizu, K., Itayama, T. (2022). Statistical analysis of the effects of environmental factors and fish species on class-sorted phytoplankton composition in aquaculture ponds in northern Thailand. *Maejo International Journal of Energy and Environmental Communication*, 4(3), 32–38.
- **Le-Huynh, T.-L.**, Itayama, T., Mitsunaga, K., Angalika, M., Suzuki, S. (2022). Application of hurdle Poisson model to predict the abundance of toxic cyanobacteria Microcystis in reservoirs. *Maejo International Journal of Energy and Environmental Communication*, 4(3), 47–51.

● Selected Presentations

- **Le-Huynh, T.-L.**, Iwami, N., Praphrute, R., Whangchai, N., Gutierrez, R., Shimizu, K., Itayama, T., Statistical analysis on phytoplankton population at hypertrophic ponds in northern Thailand [Oral presentation], *The 57th Annual Conference of Japan Society on Water Environment*, Ehime, Japan, March 2023.
- **Le-Huynh, T.-L.**, Itayama, T., Mitsunaga, K., Angalika, M., Suzuki, S., Predict toxic cyanobacteria Microcystis in reservoirs by Bayesian hurdle Poisson model [Oral presentation], *1st Campus Asia Program International Symposium*, Nagasaki, Japan, February 2023.
- **Le-Huynh, T.-L.**, Itayama, T., Mitsunaga, K., Using Bayesian hurdle Poisson model to predict cyanobacterial cell densities in Nagasaki reservoirs [Oral presentation], *The 56th Annual Conference of Japan Society on Water Environment*, Toyama, Japan, March 2022.
- **Le-Huynh, T.-L.**, Mitsunaga, K., Itayama, T., A Bayesian model for predicting the growth of toxic Microcystis from air temperature and trophic state index [Oral presentation], *The 3rd International Conference on Renewable Energy, Sustainable Environmental and Agricultural Technologies*, Chiangmai, Thailand, December 2021.
- **Le-Huynh, T.-L.**, Itayama, T., Nguyen, T. H. G., Xia, D., Shimizu, K., Iwami, N., Okano, K., Maseda, H., Praphrute, R., Ruangdet, K., Gutierrez, R., Whangchai, N., Influence of environmental factors on Microcystins degradation bacteria and toxigenic cyanobacteria bloom: a Bayesian approach [Poster presentation], *The NaToxAq Conference on Natural Toxins: Environmental Fate & Safe Water Supply*, Brno, Czech Republic, September 2020.