

THUY LINH DO

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Ann Arbor, Michigan - 48105, USA

EDUCATION

- **Tulane University** Jul 2019 - May 2025* (expected)
Doctor of Philosophy - PhD in Applied Mathematics New Orleans, LA, USA
 - GPA: 4.00/4.00
- **Vietnam National University - University of Education** Sep 2013 - Jul 2017
Bachelor in Mathematics Teacher Education, Summa Cum Laude Hanoi, Vietnam
 - GPA: 3.81/4.00
- **Nguyen Hue High School for Gifted Students** Sep 2010 - Jul 2013
Specialized in Mathematics Hanoi, Vietnam
 - Graduation Certificate level: Good

PROFESSIONAL EXPERIENCE

- **Tulane University**  2019 - Present
PhD Candidate/Graduate Teaching Associate/Graduate Research Assistant New Orleans, LA, USA
 - Working at the Stochastic Lab of Professor Scott A. McKinley as a research assistant. Conducted research in several fields, including particle tracking, changepoint detection algorithms, Bayesian statistics, model selections, and Mixtures of models. Solved various mathematical and statistical problems using Python, R, Matlab, and LaTeX.
 - Developed course materials and provided instruction both in and out of Instructure's Canvas LMS for various subjects, including Statistics for Scientists and Probability and Statistics. Integrated external tools like WebAssign and MyLab into Canvas LMS. Served as Canvas power-user and informal Canvas administrator.
 - Delivered instruction and support for 13 math courses to over 500 students, generating over \$2M in tuition revenue.
- **NSF-Simons Southeast Center for Mathematics and Biology**  2022 - present
Junior Researcher Atlanta, GA, USA
 - Studied the intracellular transport. Developed an automated change point analysis to segment the paths of lysosomes - a new changepoint detection algorithm, CPLASS (Continuous Piecewise Linear Approximation using Stochastic Searching methods) (used R programming), for the change-in-slope problem for multidimensional data.
 - Produced a new pruning and merging algorithm, named DPM (Dendrogram Pruning and Merging) (used Python programming), for change-in-mean and change-in-variance problems with fast computational cost (linear cost).
 - Participated in the project studying the experimental frame rates and robust segmentation analysis of piecewise-linear microparticle trajectories.
- **Vietnam National University, University of Science**  2017 - 2019
Lecturer Hanoi, Vietnam
 - Conducted data analysis to interpret research on the geography of climate change adaptation using statistical structural models.
 - Proactively developed course materials for subjects including Statistics and Probability, Calculus 1,2,3, and Linear Algebra.
 - Delivered math education through personalized instruction, enriching students' learning experiences, including undergraduate and high-school levels. Taught Mathematics at Hanoi University of Science - High School for gifted students.
 - Fostered a conducive learning environment leading to an average student pass rate of 80%, approximately 15% above existing benchmarks.

RESEARCH PUBLICATIONS

I= IN PREPARATION, B= BOOKS AND CHAPTERS, J=JOURNAL, S=IN SUBMISSION, T=THESIS

- [J.1] Dat Do, Linh Do, XuanLong Nguyen (2023). **Strong identifiability and parameter learning in regression with heterogeneous response**. The manuscript is accepted for publication in *Electronic Journal of Statistics*.
- [S.1] Dat Do, Linh Do, Scott A. McKinley, XuanLong Nguyen, Jonathan Terhorst (2024). **Dendrogram of mixing measures: Hierarchical Clustering and model selection for finite mixture models**. The manuscript is submitted for publication in *Journal of the American Statistical Association*.
- [S.2] Keisha J. Cook, Nathan Rayens, Linh Do, Christine K. Payne, and Scott A. McKinley(2024). **Considering experimental frame rates and robust segmentation analysis of piecewise-linear microparticle trajectories**. The manuscript is submitted for publication in *Mathematical Biosciences and Engineering*.
- [B.1] Nguyen, A.T., Pham, H.T.T, Trinh, Q.A, Linh Do, Dang, P.A, & Hens, L., (2021).**The geography of climate change adaptation in the vietnam northern mountains: A quantitative analysis for intentions of indigenous ethnic minorities using structural equation modeling (sem) and protection motivation theory (pmt)**. In: Rai, P.K., Singh, P., Mishra, V.N. (eds) Recent Technologies for Disaster Management and Risk Reduction. Earth and Environmental Sciences Library. Springer, Cham.
- [I.1] Linh Do and et al. **Dendrogram of signal functions for summarization and model selection in changepoint detection**. In preparation for submission to the *Journal of Statistical Planning and Inference*, February 2025.
- [I.2] Linh Do and et al. **CPLASS - Another piecewise linear approximations to microparticle trajectories**. In preparation for submission to *Mathematical Biosciences and Engineering*, February 2025.

INSTRUCTION

- **Instructor on Record (7 years experience):** Probability and Statistics, Statistics for Scientists and Engineers, Calculus 1,2,3, College Algebra.
- **Teaching Assistant (5 years experience):** Probability and Statistics for Scientists and Engineers

PRESENTATIONS

- **Strong identifiability and parameter learning in regression with heterogeneous response**. 13th International Conference on Bayesian Nonparametrics (Puerto Varas, Chile). Oct 2022.
- **Mixture Model and the applications**. Graduate Colloquium at the Department of Mathematics, Tulane University. Nov 2022.
- **A new changepoint algorithm detecting multiple change-in-speed**. NSF-Simons Southeast Center for Mathematics and Biology (SCMB). Oct 2023.
- **Dendrogram of mixing measures: Hierarchical clustering and model selection for finite mixture models**. Joint Statistical Meetings (Portland, Oregon). Aug 2024
- **Inferring and interpreting heterogeneous data using dendrograms**. Computational and Applied Math Seminar at the Department of Mathematics, Tulane University. Nov 2024.



SKILLS

- **Programming:** Python, R, LaTeX, Maple, SQL, MatLab, Microsoft Office.
- **Languages:** Strong reading, writing and speaking competencies for English and Vietnamese.

HONORS AND AWARDS

- **Mathematical Sciences and Research Institute (MSRI) Summer Program Admission** 2022
MSRI & Courant Institute in New York 
 - The award was being selected into the program. Mathematics of Machine Learning (INdAM and Courant Institute).
- **Toshiba Scholarship for young scientists** 2018
Toshiba 
 - The Toshiba scholarship program aims to support students, graduate students, and graduate students (students) with excellent academic and research achievements.
- **Golden record of excellent valedictorians graduating from universities in Hanoi, Vietnam** 2017
Hanoi Municipal Party Committee - Hanoi People's Council - Hanoi People's Committee. 
 - The program to honor outstanding valedictorians graduating from universities and academies in Hanoi in 2017, organized by the Hanoi Municipal Party Committee, the People's Council, and the People's Committee.
- **Prize for Outstanding Student Performance** 2017
Hanoi University of Science and Hanoi University of Education, VNU
 - For students with excellent achievement in learning and scientific research.

VOLUNTEER EXPERIENCE

- **Conference Organizer, Marketing and Photography** 2019
Math For All - Tulane University - New Orleans - Louisiana. 
- **Session Leader** 2020
Boys at Tulane in STEM (BATS) - K-12 STEM Education Events - Tulane University - New Orleans - Louisiana. 

REFERENCES

1. **Scott A. McKinley**
Associate Professor, Department of Mathematics
Tulane University
Email: scott.mckinley@tulane.edu
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Role: Thesis Advisor / Chair of Dissertation Committee
2. **Lifeng Han**
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Role: Professor
3. **Michael Joyce**
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Role: Advisor/ Professor
4. **XuanLong Nguyen**
Professor, Department of Statistics
University of Michigan
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Role: Professor
5. **Viet Cuong Do**
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Role: Professor