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 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. Solved the question of tracking the movement of lysosome data. Also 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).
  - 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.
- **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

[S.1] Dat Do, **Linh Do**, XuanLong Nguyen (2023). **Strong identifiability and parameter learning in regression with heterogeneous response**. Manuscript submitted for publication in *Electronic Journal of Statistics* .

[S.2] 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**. Manuscript submitted for publication in *Journal of the American Statistical Association*.

[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 Journal of Statistical Planning and Inference, December 2024.

[I.2] **Linh Do** and et al. **CPLASS - Another piecewise linear approximations to microparticle trajectories**. In preparation for submission to Mathematical Biosciences and Engineering, January 2025.

[I.2] Keisha J. Cook, Nathan Rayens, **Linh Do**, Christine K. Payne, and Scott A. McKinley. **Considering experimental frame rates and robust segmentation analysis of piecewise-linear microparticle trajectories**. In preparation for submission to Mathematical Biosciences and Engineering, January 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 Univerisity - New Orleans - Louisiana. [🌐]

REFERENCES

1. **Scott A. McKinley**
   Associate Professor, Department of Mathematics
   Tulane University
   Email: scott.mckinley@tulane.edu
   Phone: +1-504-862-3246
   Role: Thesis Advisor / Chair of Dissertation Committee

2. **Lifeng Han**
   Professor of Practice, Department of Mathematics
   Tulane University
   Email: lhan1@tulane.edu
   Phone: +1-504-862-3435
   Role: Professor

3. **XuanLong Nguyen**
   Professor, Department of Statistics
   University of Michigan
   Email: xuanlong@umich.edu
   Phone: +1-734-763-3499
   Role: Professor

4. **Viet Cuong Do**
   Associate Professor, Department of Mathematics
   Vietnam National University, Hanoi University of Science
   Email: vcuong.do@gmail.com
   Phone: +84 868961764
   Role: Professor