

# THUY LINH DO

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Chicago, IL - 60637, USA

## EDUCATION

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- **Tulane University** Jul 2019 - May 2025  
*Doctor of Philosophy - PhD in 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, Valedictorian* Hanoi, Vietnam
  - GPA: 3.81/4.00

## EMPLOYMENT HISTORY

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- **Tulane University** 2025 - present  
*Research Scientist (remote)* New Orleans, LA, USA
- **Tulane University** 2019 - 2025  
*PhD Candidate/Graduate Teaching Associate/Graduate Research Assistant* New Orleans, LA, USA
- **NSF-Simons Southeast Center for Mathematics and Biology** 2022 - 2025  
*Junior Researcher* Atlanta, GA, USA
- **Vietnam National University, University of Science** 2017 - 2019  
*Lecturer* Hanoi, Vietnam

## RESEARCH INTERESTS

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Bayesian Hierarchical Models, Empirical Bayes, Change-Point Analysis, Intracellular Transport, Machine Learning.

## TEACHING TRAINING AND EXPERIENCE

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- **Graduate Teaching Assistant** 2019 - 2025  
*Tulane University - Department of Mathematics*
  - **MATH 1110: Probability and Statistics** - conducted tutorial sessions to reinforce lecture content; created and graded weekly quizzes; graded homework, midterms, and final exams; held office hours and answered student questions.
  - **MATH 1210: Calculus I** - led problem-solving sessions and review workshops; graded homework and exams; held office hours.
  - **MATH 1220: Calculus II** - supported students in mastering advanced integration techniques; assisted in exam proctoring and grading; conducted tutorial sessions.
  - **MATH 2210: Calculus III** - facilitated group discussions and practice sessions; graded assignments and exams; provided individualized academic support during office hours.
  - **MATH 1230: Statistics for Scientists (Instructor)** - designed and delivered lectures tailored for science majors; developed quizzes, midterms, and final exams; assessed student performance and provided constructive feedback; integrated real-world scientific data into statistical examples; oversaw classroom management and student engagement.
- **Lecturer** 2017-2019  
*Vietnam National University, University of Science*
  - Applied Statistics
  - Mathematical Statistics and Probability
  - Calculus I, II, III
  - Linear Algebra
- **Part-time Teacher** 2017-2019  
*High School for Gifted Students, VNU University of Science*

- Pre-Calculus
- Pre-Algebra
- Probability and Statistics

- **B.S in Education with a six-month internship**

2016-2017

*High School of Education and Sciences, VNU University of Education*

- Calculus
- Analysis
- Probability and Statistics

## SKILLS

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- **Programming:** Python, R, Maple, SQL, MatLab.
- **Python:** Fluent in using JAX, tskit, Numpy, Matplotlib, PyTorch.
- **R:** Fluent in using RStudio, including R Script, R Markdown, packages ggplot2, tidyverse, dplyr, stats, MASS, caret, tidymodels, parallel.
- **Data & Analysis Tools:** ImageJ, Fiji (video and image preprocessing), LaTeX, Microsoft Office.
- **Languages:** Strong reading, writing and speaking competencies for English and Vietnamese.

## RESEARCH PUBLICATIONS

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

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- [T] **Linh Do** (2025). **Changepoint detection: theory, algorithms, and application in intracellular transport.** *Tulane University.*
- [J.1] Dat Do, **Linh Do**, XuanLong Nguyen (2025). **Strong identifiability and parameter learning in regression with heterogeneous response.** *Electronic Journal of Statistics*, 19 (1) 131 - 203.
- [J.2] Keisha J. Cook, Nathan Rayens, **Linh Do**, Christine K. Payne, and Scott A. McKinley (2025). **Considering experimental frame rates and robust segmentation analysis of piecewise-linear microparticle trajectories.** *Mathematical Biosciences and Engineering*, Volume 22, Issue 10: 2595-2626..
- [S.1] **Linh Do**, Dat Do, Keisha J. Cook, Nathan Rayens, Christine K. Payne, Scott A. McKinley (2025). **Change-in-velocity detection for multidimensional data.** To be submitted to *Journal of Computational and Graphical Statistics*.  code
- [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.** The manuscript has been submitted to *Biometrika*. 
- [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.*
- [I.2] **Linh Do**, Dat Do, Sunrit Chakraborty. **Visualizing, Interpreting, and Improving Sparse Matrix Factorization Model Fit.** In preparation.
- [I.3] Dat Do, **Linh Do**, Peter Carbonetto, Matthew Stephens. **Improved out-of-sample covariance estimation for fitting the SuSiE model with summary statistics.** In preparation.

## PRESENTATIONS

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- **A segmentation analysis in noisy trajectories.** NITMB MathBio Convergence Conference. *Aug 2025.*
- **CPLASS: A segmentation analysis in noisy trajectories.** Final Symposium, NSF-Simons Southeast Center for Mathematics and Biology. *Apr 2025.*
- **Inferring and interpreting heterogeneous data using dendrograms.** Computational and Applied Math Seminar at the Department of Mathematics, Tulane University. *Nov 2024.*
- **Dendrogram of mixing measures: Hierarchical clustering and model selection for finite mixture models.** Joint Statistical Meetings (Portland, Oregon). *Aug 2024*
- **A new changepoint algorithm detecting multiple change-in-velocity.** NSF-Simons Southeast Center for Mathematics and Biology (SCMB). *Oct 2023.*
- **Mixture Model and the applications.** Graduate Colloquium at the Department of Mathematics, Tulane University. *Nov 2022.*
- **Strong identifiability and parameter learning in regression with heterogeneous response.** 13th International Conference on Bayesian Nonparametrics (Puerto Varas, Chile). *Oct 2022.*

## HONORS AND AWARDS

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- **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

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

## REFERENCES

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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. **XuanLong Nguyen**  
Professor, Department of Statistics, University of Michigan  
Email: xuanlong@umich.edu  
Phone: +1-734-763-3499  
Role: Professor
3. **Michael Joyce**  
Senior Professor of Practice, Department of Mathematics, Tulane University  
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Role: Teaching Advisor/ Professor
4. **Lifeng Han**  
Professor of Practice, Department of Mathematics, Tulane University  
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Role: Professor
5. **Viet Cuong Do**  
Associate Professor, Department of Mathematics, Vietnam National University, Hanoi University of Science  
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Role: Professor