

Khai Nguyen

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OVERVIEW

I am a final-year Ph.D. candidate in Statistics at The University of Texas at Austin. My research focuses on the intersection of optimal transport, statistics, and machine learning.

EDUCATION

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| The University of Texas at Austin Ph.D. in Statistics at Department of Statistics and Data Sciences | Texas, USA 2021–Present |
| – Expected graduation date: May, 2026. – Advisors: Professor Nhat Ho and Professor Peter Mueller. | |
| Hanoi University of Science and Technology (HUST) B.Sc in Computer Science (5 years program) | Hanoi, Vietnam 2015–2020 |
| – Top: 1%, graduated with Excellent Degree. | |

ACADEMIC EXPERIENCE

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| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA January, 2025 –May, 2025 |
| – Research topic: Machine Learning for Human Epilepsy Analysis. | |
| The University of Texas at Austin <i>Graduate Teaching Assistant</i> | Texas, USA August, 2024 –January, 2025 |
| – Courses: Linear Models, Elements of Statistics. | |
| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA September, 2023 –May, 2024 |
| – Research topic: Effective and Scalable Transportation Metrics for Machine Learning and Statistics. | |
| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA September, 2022 –May, 2023 |
| – Research topic: Large-scale Optimal Transport for Machine Learning. | |

INDUSTRIAL EXPERIENCE

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| Amazon Science <i>Applied Scientist Intern</i> | Austin, TX, USA May, 2025 –August, 2025 |
| – Developed a multi-task training framework session-based recommendations with large language models and improved online-inference by using KV caching and speculative decoding. | |
| Amazon Science <i>Applied Scientist Intern</i> | Seattle, WA, USA May, 2024 –August, 2024 |
| – Proposed a framework that leverages large language models and deep generative models to increase the diversity of product recommendations. | |

Toyota InfoTech Labs*Research Intern*

Mountain View, CA, USA

May, 2023 –August, 2023

- Developed a Transformer-based framework with global-local decomposition, improving battery health prediction.

AT&T Labs*Research Intern*

Texas, USA

June, 2022 –August, 2022

- Proposed and implemented co-clustering algorithms to analyze user browsing behavior in PySpark.

VinAI Research (Acquired by Qualcomm AI Research)*AI Research Resident*

Hanoi, Vietnam

2019 –2021

- Did research on Deep Generative Models (VAEs, GANs, score matching, diffusion models) and improved them with Optimal Transport (sliced Wasserstein distance, Sinkhorn divergence).

BOOKS

1. **K. Nguyen**, “An Introduction to Sliced Optimal Transport: Foundations, Advances, Extensions, and Applications”, *Foundations and Trends® in Computer Graphics and Vision*, 2025.

UNDER REVIEW, UNDER REVISION, AND UNDER PREPARATION

(*) denotes equal contribution

1. **K. Nguyen**, Y. Ni, and P. Mueller, “Bayesian multiple multivariate density-density regression”, *Under review*, 2026.
2. **K. Nguyen**, “Streaming sliced optimal transport”, *Under review*, 2025.
3. **K. Nguyen**, Y. Ni, and P. Mueller, “Bayesian multivariate density-density regression”, *Under major revision at Bayesian Analysis*, 2025.
4. N. Barilett, **K. Nguyen**, and N. Ho, “Data-driven DRO and economic decision theory: An analytical synthesis with Bayesian nonparametric advancements”, *Under review*, 2024.

REFEREED PUBLICATIONS

(*) denotes equal contribution,

Google Scholar: <https://scholar.google.com/citations?user=im5fNaQAAAAJ&hl=en>

1. **K. Nguyen***, H. Nguyen*, T. Pham, and N. Ho, “Fast estimation of Wasserstein distances via regression on sliced Wasserstein distances”, *International Conference on Learning Representations (ICLR)*, 2026.
2. **K. Nguyen** and P. Mueller, “Summarizing nonparametric Bayesian mixture posterior – sliced optimal transport metrics for Gaussian mixtures”, *Journal of Computational and Graphical Statistics (JCGS)*, 2026.
3. M. Luong, **K. Nguyen**, D. Phung, G. Haffari, and L. Qu, “Unbiased sliced Wasserstein kernels for high-quality audio captioning”, *Neural Information Processing Systems (NeurIPS)*, 2025.
4. **K. Nguyen***, H. Nguyen*, T. Pham, and N. Ho, “Lightspeed geometric dataset distances via sliced optimal transport”, *International Conference on Machine Learning (ICML)*, 2025.

5. **K. Nguyen***, H. Nguyen*, and N. Ho, “Towards marginal fairness sliced Wasserstein barycenter”, *International Conference on Learning Representations (ICLR)*, **Spotlight 3.2%**, 2025.
6. **K. Nguyen** and N. Ho, “Hierarchical hybrid sliced Wasserstein: A scalable metric for heterogeneous joint distributions”, *Neural Information Processing Systems (NeurIPS)*, 2024.
7. **K. Nguyen**, S. Zhang, T. Le, and N. Ho, “Sliced Wasserstein with random-path projecting directions”, *International Conference on Machine Learning (ICML)*, 2024.
8. T. T. Le, **K. Nguyen**, S. Sun, N. Ho, and X. Xie, “Integrating efficient optimal transport and functional maps for unsupervised shape correspondence learning”, in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
9. **K. Nguyen**, N. Bariletto, and N. Ho, “Quasi-Monte Carlo for 3D sliced Wasserstein”, *International Conference on Learning Representations (ICLR)*, **Spotlight 5%**, 2024.
10. **K. Nguyen** and N. Ho, “Sliced Wasserstein estimation with control variates”, *International Conference on Learning Representations (ICLR)*, 2024.
11. T. Le, **K. Nguyen**, N. Ho, S. Sun, K. Han, and X. Xie, “Diffeomorphic deformation via sliced Wasserstein distance optimization for cortical surface reconstruction”, *International Conference on Learning Representations (ICLR)*, 2024.
12. M. Luong, **K. Nguyen**, N. Ho, R. Haf, D. Phung, and L. Qu, “Revisiting deep audio-text retrieval through the lens of transportation”, *International Conference on Learning Representations (ICLR)*, 2024.
13. H. Nguyen, **K. Nguyen**, and N. Ho, “On parameter estimation in deviated Gaussian mixture of experts”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2024.
14. H. Nguyen, T. Nguyen, **K. Nguyen**, and N. Ho, “Towards convergence rates for parameter estimation in Gaussian-gated mixture of experts”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2024.
15. **K. Nguyen** and N. Ho, “Energy-based sliced Wasserstein distance”, *Neural Information Processing Systems (NeurIPS)*, 2023.
16. **K. Nguyen**, T. Ren, and N. Ho, “Markovian sliced Wasserstein distances: Beyond independent projections”, *Advances in Neural Information Processing Systems (NeurIPS)*, 2023.
17. D. Le*, H. Nguyen*, **K. Nguyen***, T. Nguyen, and N. Ho, “Fast approximation of the generalized sliced-Wasserstein distance”, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2024.
18. X. Han, T. Ren, T. M. Nguyen, **K. Nguyen**, J. Ghosh, and N. Ho, “Robustify Transformers with robust kernel density estimation”, *Neural Information Processing Systems (NeurIPS)*, 2023.
19. D. Do, H. Nguyen, **K. Nguyen**, and N. Ho, “Minimax optimal rate for parameter estimation in multivariate deviated models”, *Neural Information Processing Systems (NeurIPS)*, 2023.
20. **K. Nguyen***, D. Nguyen*, and N. Ho, “Self-attention amortized distributional projection optimization for sliced Wasserstein point-clouds reconstruction”, *International Conference on Machine Learning (ICML)*, 2023.
21. **K. Nguyen**, T. Ren, H. Nguyen, L. Rout, T. Nguyen, and N. Ho, “Hierarchical sliced Wasserstein distance”, *International Conference on Learning Representations (ICLR)*, 2023.

22. D. Nguyen, T. Nguyen, **K. Nguyen**, D. Phung, H. Bui, and N. Ho, “On cross-layer alignment for model fusion of heterogeneous neural networks”, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023.
23. **K. Nguyen** and N. Ho, “Revisiting sliced Wasserstein on images: From vectorization to convolution”, *Neural Information Processing Systems (NeurIPS)*, 2022.
24. **K. Nguyen** and N. Ho, “Amortized projection optimization for sliced Wasserstein generative models”, *Neural Information Processing Systems (NeurIPS)*, 2022.
25. T. Nguyen, M. Pham, T. Nguyen, **K. Nguyen**, S. J. Osher, and N. Ho, “Transformer with Fourier integral attentions”, *Neural Information Processing Systems (NeurIPS)*, 2022.
26. T. Nguyen, T. Nguyen, H. Do, **K. Nguyen**, V. Saragadam, M. Pham, K. Nguyen, N. Ho, and S. J. Osher, “Improving transformer with an admixture of attention heads”, *Neural Information Processing Systems (NeurIPS)*, 2022.
27. **K. Nguyen***, D. Nguyen*, T.-A. Vu-Le, T. Pham, and N. Ho, “Improving mini-batch optimal transport via partial transportation”, in *International Conference on Machine Learning (ICML)*, 2022.
28. **K. Nguyen**, D. Nguyen, Q. Nguyen, T. Pham, H. Bui, D. Phung, T. Le, and N. Ho, “On transportation of mini-batches: A hierarchical approach”, in *International Conference on Machine Learning (ICML)*, 2022.
29. K. Le, H. Nguyen, **K. Nguyen**, T. Pham, and N. Ho, “On multimarginal partial optimal transport: Equivalent forms and computational complexity”, in *International Conference on Artificial Intelligence and Statistics (AISTATS)*, PMLR, 2022, pp. 4397–4413.
30. S. Nguyen, D. Nguyen, **K. Nguyen**, K. Than, H. Bui, and N. Ho, “Structured dropout variational inference for bayesian neural networks”, *Neural Information Processing Systems (NeurIPS)*, 2021.
31. **K. Nguyen**, S. Nguyen, N. Ho, T. Pham, and H. Bui, “Improving relational regularized autoencoders with spherical sliced fused Gromov-Wasserstein”, in *International Conference on Learning Representations (ICLR)*, 2021.
32. **K. Nguyen**, N. Ho, T. Pham, and H. Bui, “Distributional sliced-Wasserstein and applications to generative modeling”, in *International Conference on Learning Representations (ICLR)*, **Spotlight 3.78%**, 2021.

AWARDS

- **UT Austin Professional Development Award.** 2026
- **Top Reviewer Award at NeurIPS.** 2025
- **BNP14 Travel Award.** 2025
- **UT Austin Outstanding Graduate Research Fellowship.** 2025
The UT Austin Outstanding Graduate Research Fellowship is one of the university’s most prestigious awards, recognizing exceptional academic achievement and research excellence among continuing graduate students.
- **Top Reviewer Award at NeurIPS.** 2024
- **ICML Travel Grants.** 2023
- **Top Reviewer Award at NeurIPS.** 2022
- **NeurIPS Scholar Award.** 2022
- **ICML Travel Grants.** 2022
- **UT Austin Graduate Recruitment Fellowship.** 2021
The UT Austin Graduate Recruitment Fellowship is a highly prestigious award offered to attract top academic talents.

TALKS

- Texas A&M University, Department of Statistics (Colloquium): “Sliced Optimal Transport and Statistics”, 2026.
- The Ohio State University, Department of Statistics (Colloquium): “Sliced Optimal Transport and Statistics”, 2026.
- The Institute for Computational and Experimental Research in Mathematics (ICERM), Nonparametric Bayesian Inference - Computational Issues (Lightning Talk): “Bayesian Multiple Multivariate Density-Density Regression”, 2026.
- Florida State University, Department of Statistics (Colloquium): “Sliced Optimal Transport and Statistics”, 2025.
- The Bayesian Young Statisticians Meeting (Talk in session with discussion): “Summarizing Bayesian Nonparametric Mixture Posterior - Sliced Optimal Transport Metrics for Gaussian Mixtures”, 2025.
- International Conference on Bayesian Nonparametrics (Contributed Talk): “Summarizing Bayesian Nonparametric Mixture Posterior - Sliced Optimal Transport Metrics for Gaussian Mixtures”, 2025.
- International Conference on Machine Learning (ICML) (Spotlight Talk): “On Transportation of Mini-batches: A Hierarchical Approach”, 2022.
- International Conference on Machine Learning (ICML) (Spotlight Talk): “Improving Mini-batch Optimal Transport via Partial Transportation”, 2022.

PROFESSIONAL SERVICES

- Reviewer at Journal of Machine Learning Research (JMLR).
- Reviewer at Statistics and Computing.
- Reviewer at IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
- Reviewer at Transactions on Machine Learning Research (TMLR).
- Reviewer at IEEE Transactions on Information Theory.
- Reviewer at Machine Learning Journal.
- Reviewer at International Conference on Machine Learning (ICML) 2022-2025.
- Reviewer at Workshop on Challenges in Deployable Generative AI (ICML) 2023.
- Reviewer at Conference on Neural Information Processing Systems (NeurIPS) 2021-2025.
- Reviewer at Workshop on Deep Generative Models (NeurIPS) 2021.
- Reviewer at International Conference on Learning Representations (ICLR) 2022-2026.
- Reviewer at International Conference on Artificial Intelligence and Statistics (AISTATS) 2022-2025.
- Reviewer at AAAI Conference on Artificial Intelligence (AAAI) 2023-2026 .
- Reviewer at IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023-2026.
- Reviewer at International Conference on Computer Vision (ICCV) 2023.
- Reviewer at European Conference on Computer Vision (ECCV) 2024.
- Reviewer at IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2026.
- Reviewer at IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024-2025.
- Reviewer at Conference on Language Modeling (COLM) 2024-2025.
- Reviewer at Learning on Graphs Conference (LOG) 2024-2025.

MENTORSHIP

- Hai Nguyen (Undergraduate student at Hanoi University of Science and Technology).

PROFESSIONAL MEMBERSHIP

- Institute of Electrical and Electronics Engineers (IEEE) *Regular Member*.
- International Society for Bayesian Analysis (ISBA) *Student Member*.
- Institute of Mathematical Statistics (IMS) *Student Member*.

TECHNICAL SKILLS

- **Python:** Proficient.
Libraries: Pytorch (proficient), Scikit-Learn (proficient), Numpy (proficient), Pandas (proficient), Matplotlib (proficient), Pyspark (basic), and so on.
- **Developer Tools:** Git.
- **Systems:** Linux.

REFERENCES

- **Peter Mueller.** Email: pmueller@math.utexas.edu (PhD advisor).
- **Nhat Ho.** Email: minhnhat@utexas.edu (PhD advisor).
- **Yang Ni.** Email: yni@stat.tamu.edu (collaborator).
- **Hung Bui.** Email: hungbui@qti.qualcomm.com (mentor).