

OVERVIEW

I am a fourth-year Ph.D. candidate in Statistics at The University of Texas at Austin. My research focus has primarily been on probabilistic machine learning, statistics, and data sciences.

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 |
| <ul style="list-style-type: none">– Expected graduation date: May, 2026.– GPA: 3.97/4.0.– Advisors: Professor Nhat Ho and Professor Peter Mueller. | |
| Hanoi University of Science and Technology (HUST) B.Sc in Information Systems (5 years program) | Hanoi, Vietnam 2015–2020 |
| <ul style="list-style-type: none">– Top: 1%, graduated with Excellent Degree.– Thesis: “Distributional Sliced-Wasserstein and Applications to Generative Modeling”. | |

EMPLOYMENT

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| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA January, 2025 –Now |
| <ul style="list-style-type: none">– Research topic: Machine Learning for the Human Epilepsy Analysis. | |
| The University of Texas at Austin <i>Graduate Teaching Assistant</i> | Texas, USA August, 2024 –January, 2025 |
| <ul style="list-style-type: none">– Courses: Linear Models, Elements of Statistics | |
| Amazon Science <i>Applied Scientist Intern</i> | Seattle, WA, USA May, 2024 –August, 2024 |
| <ul style="list-style-type: none">– Proposed a framework that leverages large language models and deep generative models to increase the diversity of product recommendations. | |
| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA September, 2023 –May, 2024 |
| <ul style="list-style-type: none">– Research topic: Effective and Scalable Transportation Metrics for Machine Learning, Statistics, and Data Sciences. | |
| Toyota InfoTech Labs <i>Research Intern</i> | Mountain View, CA, USA May, 2023 –August, 2023 |
| <ul style="list-style-type: none">– Proposed Transformer with global-local decomposition framework for battery-health prediction. | |
| The University of Texas at Austin <i>Graduate Research Assistant</i> | Texas, USA September, 2022 –May, 2023 |
| <ul style="list-style-type: none">– Research topic: Large-scale Optimal Transport for Machine Learning. | |

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

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

REFEREED PUBLICATIONS

(*) denotes equal contribution,

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

1. **K. Nguyen***, H. Nguyen*, and N. Ho, “Towards marginal fairness sliced Wasserstein barycenter”, *International Conference on Learning Representations (ICLR)*, 2025.
2. **K. Nguyen** and N. Ho, “Hierarchical hybrid sliced Wasserstein: A scalable metric for heterogeneous joint distributions”, *Neural Information Processing Systems (NeurIPS)*, 2024.
3. **K. Nguyen**, S. Zhang, T. Le, and N. Ho, “Sliced Wasserstein with random-path projecting directions”, *International Conference on Machine Learning (ICML)*, 2024.
4. 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.
5. **K. Nguyen**, N. Barileto, and N. Ho, “Quasi-Monte Carlo for 3D sliced Wasserstein”, *International Conference on Learning Representations (ICLR)*, **Spotlight**, 2024.
6. **K. Nguyen** and N. Ho, “Sliced Wasserstein estimation with control variates”, *International Conference on Learning Representations (ICLR)*, 2024.
7. 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.
8. 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.
9. 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.
10. 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.
11. **K. Nguyen** and N. Ho, “Energy-based sliced Wasserstein distance”, *Neural Information Processing Systems (NeurIPS)*, 2023.
12. **K. Nguyen**, T. Ren, and N. Ho, “Markovian sliced Wasserstein distances: Beyond independent projections”, *Advances in Neural Information Processing Systems (NeurIPS)*, 2023.

13. 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.
14. 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.
15. 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.
16. **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.
17. **K. Nguyen**, T. Ren, H. Nguyen, L. Rout, T. Nguyen, and N. Ho, “Hierarchical sliced Wasserstein distance”, *International Conference on Learning Representations (ICLR)*, 2023.
18. 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.
19. **K. Nguyen** and N. Ho, “Revisiting sliced Wasserstein on images: From vectorization to convolution”, *Neural Information Processing Systems (NeurIPS)*, 2022.
20. **K. Nguyen** and N. Ho, “Amortized projection optimization for sliced Wasserstein generative models”, *Neural Information Processing Systems (NeurIPS)*, 2022.
21. 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.
22. 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.
23. **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.
24. **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.
25. 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.
26. 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.
27. **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.
28. **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**, 2021.

PREPRINTS

(*) denotes equal contribution

1. **K. Nguyen** and P. Mueller, “Summarizing Bayesian nonparametric mixture posterior - sliced optimal transport metrics for Gaussian mixtures”, *Under review at Journal of Computational and Graphical Statistics*, 2024.
2. **K. Nguyen***, H. Nguyen*, T. Pham, and N. Ho, “Lightspeed geometric dataset distances via sliced optimal transport”, *Under review*, 2024.
3. M. Luong, **K. Nguyen**, D. Phung, G. Ho Haffari, and L. Qu, “ unbiased sliced wasserstein kernels for high-quality audio captioning”, *Under Review*, 2025.
4. T. Nguyen M., N. Tran N., **K. Nguyen**, and R. Baraniuk, “ improving routing in sparse mixture of experts with graph of tokens”, *Under Review*, 2024.
5. N. Barileto, **K. Nguyen**, and N. Ho, “Borrowing strength in distributionally robust optimization via hierarchical Dirichlet processes”, *Under Review*, 2024.

AWARDS

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| • Top Reviewer Award at NeurIPS 2024. | 2024 |
| • ICML 2023 Travel Grants. | 2023 |
| • Top Reviewer Award at NeurIPS 2022. | 2022 |
| • NeurIPS 2022 Scholar Award. | 2022 |
| • ICML 2022 Travel Grants. | 2022 |
| • UT Austin Doctoral Fellowship. | 2021 |

TALKS

- 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 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) 2021-2025.
- Reviewer at Workshop on Challenges in Deployable Generative AI (ICML) 2023.
- Reviewer at Conference on Neural Information Processing Systems (NeurIPS) 2021-2024.
- Reviewer at Workshop on Deep Generative Models (NeurIPS) 2021.

- Reviewer at International Conference on Learning Representations (ICLR) 2022-2025.
- Reviewer at International Conference on Artificial Intelligence and Statistics (AISTATS) 2022-2025.
- Reviewer at AAAI Conference on Artificial Intelligence (AAAI) 2023-2025.
- Reviewer at IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023-2025.
- Reviewer at International Conference on Computer Vision (ICCV) 2023.
- Reviewer at European Conference on Computer Vision (ECCV) 2024.
- Reviewer at IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024.
- Reviewer at Conference on Language Modeling (COLM) 2024-2025.
- Reviewer at Learning on Graphs Conference (LOG) 2024.

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.