

## OVERVIEW

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I am a third-year Ph.D. student in Statistics at The University of Texas at Austin. My research focus has primarily been on scalable optimal transport with applications to machine learning.

## EDUCATION

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<b>The University of Texas at Austin</b> Ph.D. in Statistics at Department of Statistics and Data Sciences	Texas, USA 2021–Present
<ul style="list-style-type: none"><li>– Expected graduation date: June, 2026.</li><li>– GPA: 3.97/4.0.</li><li>– Advisors: Professor Nhat Ho.</li></ul>	
<b>Hanoi University of Science and Technology (HUST)</b> B.Sc in Computer Science (5 years program)	Hanoi, Vietnam 2015–2020
<ul style="list-style-type: none"><li>– GPA: 3.61/4.00, Major GPA: 3.71/4.00, Top: 1%, graduated with Excellent Degree.</li><li>– Thesis: “Distributional Sliced-Wasserstein and Applications to Generative Modeling”.</li></ul>	

## EMPLOYMENT

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<b>The Univeristy of Texas at Austin</b> <i>Graduate Research Assistant</i>	Texas, USA September, 2023 –May, 2024
<ul style="list-style-type: none"><li>– Research topics: Effective and Scalable Transportation Metrics for Computer Graphics and Computer Vision.</li></ul>	
<b>Toyota InfoTech Labs</b> <i>Research Intern</i>	Mountain View, CA, USA May, 2023 –August, 2023
<ul style="list-style-type: none"><li>– Research topics: Transformer for battery-health prediction.</li><li>– Proposed Transformer with global-local decomposition framework.</li></ul>	
<b>The Univeristy of Texas at Austin</b> <i>Graduate Research Assistant</i>	Texas, USA September, 2022 –May, 2023
<ul style="list-style-type: none"><li>– Research topics: Large-scale Optimal Transport for Machine Learning.</li></ul>	
<b>AT&amp;T Labs</b> <i>Research Intern</i>	Texas, USA June, 2022 –August, 2022
<ul style="list-style-type: none"><li>– Research topics: User Browsing Behavior Analysis, Co-clustering.</li><li>– Proposed and implemented co-clustering algorithms to analyze user browsing behavior in PySpark on DataBricks.</li></ul>	
<b>VinAI Research</b> <i>AI Research Resident</i>	Hanoi, Vietnam 2019 –2021
<ul style="list-style-type: none"><li>– Research topics: Deep Generative Models, Optimal Transport.</li><li>– Advisor: Dr. Hung Bui (Director of VinAI Research).</li><li>– Did research on Deep Generative Models (VAEs, GANs, score matching, diffusion models) and improved them with Optimal Transport (sliced Wasserstein distance, Sinkhorn divergence).</li></ul>	

(\*) denotes equal contribution

1. **K. Nguyen** and N. Ho, “Energy-based sliced Wasserstein distance”, *Advances in Neural Information Processing Systems*, 2023.
2. **K. Nguyen**, T. Ren, and N. Ho, “Markovian sliced Wasserstein distances: Beyond independent projections”, *Advances in Neural Information Processing Systems*, 2023.
3. X. Han, T. Ren, T. M. Nguyen, **K. Nguyen**, J. Ghosh, and N. Ho, “Robustify Transformers with robust kernel density estimation”, *Advances in Neural Information Processing Systems*, 2023.
4. D. Do, H. Nguyen, **K. Nguyen**, and N. Ho, “Minimax optimal rate for parameter estimation in multivariate deviated models”, *Advances in Neural Information Processing Systems*, 2023.
5. **K. Nguyen\***, D. Nguyen\*, and N. Ho, “Self-attention amortized distributional projection optimization for sliced Wasserstein point-clouds reconstruction”, *Proceedings of the 40th International Conference on Machine Learning*, 2023.
6. **K. Nguyen**, T. Ren, H. Nguyen, L. Rout, T. Nguyen, and N. Ho, “Hierarchical sliced Wasserstein distance”, *International Conference on Learning Representations*, 2023.
7. D. Nguyen, T. Nguyen, **K. Nguyen**, D. Phung, H. Bui, and N. Ho, “Model fusion of heterogeneous neural networks via cross-layer alignment”, *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2023.
8. **K. Nguyen** and N. Ho, “Revisiting sliced Wasserstein on images: From vectorization to convolution”, *Advances in Neural Information Processing Systems*, 2022.
9. **K. Nguyen** and N. Ho, “Amortized projection optimization for sliced Wasserstein generative models”, *Advances in Neural Information Processing Systems*, 2022.
10. T. Nguyen, M. Pham, T. Nguyen, **K. Nguyen**, S. J. Osher, and N. Ho, “Transformer with Fourier integral attentions”, *Advances in Neural Information Processing Systems*, 2022.
11. 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”, *Advances in Neural Information Processing Systems*, 2022.
12. **K. Nguyen\***, D. Nguyen\*, T. Pham, and N. Ho, “Improving mini-batch optimal transport via partial transportation”, in *Proceedings of the 39th International Conference on Machine Learning*, 2022.
13. **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 *Proceedings of the 39th International Conference on Machine Learning*, 2022.
14. 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*, PMLR, 2022, pp. 4397–4413.
15. S. Nguyen, D. Nguyen, **K. Nguyen**, K. Than, H. Bui, and N. Ho, “Structured dropout variational inference for bayesian neural networks”, *Advances in Neural Information Processing Systems*, vol. 34, pp. 15 188–15 202, 2021.

16. **K. Nguyen**, N. Ho, T. Pham, and H. Bui, “Distributional sliced-Wasserstein and applications to generative modeling”, in *International Conference on Learning Representations*, 2021.
17. **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*, 2021.

## PREPRINTS

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(\*) denotes equal contribution

1. **K. Nguyen** and N. Ho, “Quasi-Monte Carlo for 3D sliced Wasserstein”, *Under review*, 2023.
2. **K. Nguyen** and N. Ho, “Control variate sliced Wasserstein estimators”, *Under review*, 2023.
3. T. Le, **K. Nguyen**, N. Ho, S. Sun, K. Han, and X. Xie, “Diffeomorphic deformation via sliced wasserstein distance optimization for cortical surface reconstruction”, *Under review*, 2023.
4. D. Le\*, H. Nguyen\*, **K. Nguyen\***, T. Nguyen, and N. Ho, “Fast approximation of the generalized sliced-Wasserstein distance”, *ICML 2023 Workshop on New Frontiers in Learning, Control, and Dynamical Systems*, 2023.
5. H. Nguyen, **K. Nguyen**, and N. Ho, “On parameter estimation in deviated gaussian mixture of experts”, *Under review*, 2023.
6. H. Nguyen, T. Nguyen, **K. Nguyen**, and N. Ho, “Towards convergence rates for parameter estimation in gaussian-gated mixture of experts”, *Under review*, 2023.

## PROFESSIONAL SERVICES

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- Reviewer at Journal of Machine Learning Research (JMLR).
- Reviewer at Machine Learning Journal.
- Reviewer at IEEE Transactions on Pattern Analysis and Machine Intelligence.
- Reviewer at International Conference on Machine Learning (ICML) 2021-2023.
- Reviewer at Workshop on Challenges in Deployable Generative AI (ICML) 2023.
- Reviewer at Conference on Neural Information Processing Systems (NeurIPS) 2021-2023.
- Reviewer at Workshop on Deep Generative Models (NeurIPS) 2021.
- Reviewer at International Conference on Learning Representations (ICLR) 2022-2024.
- Reviewer at International Conference on Artificial Intelligence and Statistics (AISTATS) 2022-2024.
- Reviewer at AAAI Conference on Artificial Intelligence (AAAI) 2023-2024.
- Reviewer at IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023.
- Reviewer at International Conference on Computer Vision (ICCV) 2023.

## AWARDS

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| • ICML 2023 Travel Grants (about \$2,000).                                   | 2023 |
| • Top Reviewer Award at NeurIPS 2022 (about \$1,000).                        | 2022 |
| • NeurIPS 2022 Scholar Award (about \$2,000).                                | 2022 |
| • ICML 2022 Travel Grants (about \$2,000).                                   | 2022 |
| • Doctoral Fellowship of The University of Texas at Austin (about \$30,000). | 2021 |

## TECHNICAL SKILLS

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- **Python:** Proficient.

*Libraries: Pytorch (proficient), Tensorflow (basic), Scikit-Learn (proficient), Numpy (proficient), Pandas (basic), Matplotlib (proficient), Pyspark (basic), and so on.*

- **Developer Tools:** Git.
- **Systems:** Linux.

## REFERENCES

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- **Nhat Ho.** Email: minhnhhat@utexas.edu (advisor).
- **Tan Nguyen.** Email: tanmnguyen89@ucla.edu.