

## OVERVIEW

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I am a second-year Ph.D. student in Statistics at The University of Texas at Austin. My research focus has primarily been on probabilistic models and optimal transport.

## EDUCATION

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### **The University of Texas at Austin**

Texas, USA

Ph.D. in Statistics at Department of Statistics and Data Sciences

2021–Present

- Expected graduation date: June, 2026.
- GPA: 3.97/4.0.
- Advisors: Professor Nhat Ho.

### **Hanoi University of Science and Technology (HUST)**

Hanoi, Vietnam

B.Sc in Computer Science (5 years program)

2015–2020

- GPA: 3.61/4.00, Major GPA: 3.71/4.00, Top: 1%, graduated with Excellent Degree.
- Thesis: “Distributional Sliced-Wasserstein and Applications to Generative Modeling”.

## EMPLOYMENT

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### **Toyota InfoTech Labs**

Mountain View, CA, USA

*Research Intern*

May, 2023 –August, 2023

- Research topics: Transformer for point-cloud data.

### **The Univeristy of Texas at Austin**

Texas, USA

*Graduate Research Assistant*

September, 2022 –May, 2023

- Research topics: Random projections for probability measures, Large-scale optimal transport in Machine Learning.

### **AT&T Labs**

Texas, USA

*Research Intern*

June, 2022 –August, 2022

- Research topics: User Browsing Behavior Analysis, Co-clustering.
- Proposed and implemented co-clustering algorithms to analyze user browsing behavior in PySpark on DataBricks.

### **VinAI Research**

Hanoi, Vietnam

*AI Research Resident*

2019 –2021

- Research topics: Deep Generative Models, Optimal Transport.
- Advisor: Dr. Hung Bui (Director of VinAI Research).
- Did research on Deep Generative Models (VAEs, GANs, score matching, diffusion models) and improved them with Optimal Transport (sliced Wasserstein distance, Sinkhorn divergence).

## PUBLICATIONS

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(\*) denotes equal contribution

1. **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.
2. **K. Nguyen**, T. Ren, H. Nguyen, L. Rout, T. Nguyen, and N. Ho, “Hierarchical sliced Wasserstein distance”, *International Conference on Learning Representations*, 2023.
3. 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.
4. **K. Nguyen** and N. Ho, “Revisiting sliced Wasserstein on images: From vectorization to convolution”, *Advances in Neural Information Processing Systems*, 2022.
5. **K. Nguyen** and N. Ho, “Amortized projection optimization for sliced Wasserstein generative models”, *Advances in Neural Information Processing Systems*, 2022.
6. 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.
7. 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.
8. **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.
9. **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.
10. 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.
11. 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.
12. **K. Nguyen**, N. Ho, T. Pham, and H. Bui, “Distributional sliced-Wasserstein and applications to generative modeling”, in *International Conference on Learning Representations*, 2021.
13. **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.

## SUBMISSIONS

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(\*) denotes equal contribution

1. **K. Nguyen** and N. Ho, “Control variate sliced Wasserstein estimators”, *arXiv preprint arXiv:2305.00402*, 2023

2. **K. Nguyen** and N. Ho, “Energy-based sliced Wasserstein distance”, *arXiv preprint arXiv:2304.13586*, 2023
3. **K. Nguyen**, T. Ren, and N. Ho, “Markovian sliced Wasserstein distances: Beyond independent projections”, *arXiv preprint arXiv:2301.03749*, 2023.
4. D. Le\*, H. Nguyen\*, **K. Nguyen\***, T. Nguyen, and N. Ho, “Fast approximation of the generalized sliced-Wasserstein distance”, *arXiv preprint arXiv:2210.10268*, 2022.
5. X. Han, T. Ren, T. M. Nguyen, **K. Nguyen**, J. Ghosh, and N. Ho, “Robustify Transformers with robust kernel density estimation”, *arXiv preprint arXiv:2210.05794*, 2022.
6. N. Ho, D. Do, H. Nguyen, and **K. Nguyen**, “Optimal rate for parameter estimation in matrix-variate deviated models”, *arXiv preprint arXiv:2301.11808*, 2023.
7. H. Nguyen, **K. Nguyen**, and N. Ho, “On parameter estimation in deviated gaussian 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 International Conference on Machine Learning (ICML) 2021, 2022, 2023.
- Reviewer at Conference on Neural Information Processing Systems (NeurIPS) 2021, 2022 (top reviewer).
- Reviewer at Workshop on Deep Generative Models (NeurIPS) 2021.
- Reviewer at International Conference on Learning Representations (ICLR) 2022, 2023.
- Reviewer at International Conference on Artificial Intelligence and Statistics (AISTATS) 2022, 2023.
- Reviewer at AAAI Conference on Artificial Intelligence (AAAI) 2023.
- 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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| • NeurIPS 2022 Scholar Award (about 2,000\$).   | 2022 |
| • ICML Participation Grants (about 2,000\$).  | 2022 |
| • Doctoral Fellowship of The University of Texas at Austin (about 30,000\$).                      | 2021 |
| • Third Prize of Scientific Research Student Award of Hanoi University of Science and Technology. | 2019 |

## 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.*
- **Java:** Basic.
- **C/C++:** Basic.
- **Developer Tools:** Git.
- **Systems:** Linux.