# Dang **Nguyen**

☎ (+1) 310-254-4895 | ✉ nguyentuanhaidang@gmail.com | 🏠 hsgser.github.io | ⌨ hsgser | 🔗 dang-nguyen-50b7a7a0 | 🎓 Dang Nguyen

## **Res**earch interests

My research is centered on developing efficient and robust machine-learning algorithms for large-scale datasets and architectures. Specifically, I am focused on improving the training efficiency of large language models and enhancing their robustness. Additionally, I am interested in exploring Generative AI and Multimodal Learning, with a particular emphasis on improving data quality. Through my work, I aim to advance the capabilities of machine learning systems in handling complex and diverse data while ensuring their reliability and performance.

## **Edu**cation

### University of California, Los Angeles
*California, USA*

*Ph.D. in Computer Science*
*Sep. 2023 - Present*

- Advised by Professor Baharan Mirzasoleiman
- UCLA Graduate Dean's Scholar Award

### Toyo University
*Tokyo, Japan*

*B.S. in Information Networking for Innovation and Design*
*Apr. 2017 - Mar. 2021*

- Toyo Top Global Scholarship A
- GPA: 4.27/4.3, Top 1/300 in the faculty
- Top thesis award

## **Exp**erience

### Google Research
*California, USA*

*Student Researcher*
*Sep. 2024 - Present*

- Topic: Synthetic data generation for LLMs

### Cisco
*California, USA*

*PhD Research Intern*
*Jun. 2024 - Sep. 2024*

- Supervisor: Dr. Ali Payani
- Topic: LLM Hallucination

### VinAI
*Hanoi, Vietnam*

*AI Resident*
*Oct. 2020 - Aug. 2023*

- Supervisor: Professor Nhat Ho (UT Austin)
- Topics: Optimal Transport and Model Merging
- Participated in an applied project which aims to improve the performance of object detectors in low-light conditions.
- Managed GPU resources for the VinAI Residency Program.

### FPT Japan Holdings
*Yokohama, Japan*

*Part-time Machine Learning Engineer*
*Oct. 2019 - Sep. 2020*

- Participated in a long-term demand forecasting project for a chain pharmacy company in Japan.

## **Pub**lications

*(\*) denotes equal contribution*

1. **D. Nguyen**, P. Haddad, E. Gan, and B. Mirzasoleiman. Changing the Training Data Distribution to Reduce Simplicity Bias Improves In-distribution Generalization. *Advances in Neural Information Processing Systems (NeurIPS)*, 2024.

2. Y. Xue, J. Siddharth, **D. Nguyen**, and B. Mirzasoleiman. Understanding the Robustness of Multi-modal Contrastive Learning to Distribution Shift. *International Conference on Learning Representations (ICLR)*, 2024.

3. K. Nguyen\*, **D. Nguyen\***, N. Ho. Self-Attention Amortized Distributional Projection Optimization for Sliced Wasserstein Point-Cloud Reconstruction. *International Conference on Machine Learning (ICML)*, 2023.

4. **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. (Top 3%)

5. K. Nguyen\*, **D. Nguyen\***, T. A. V. Le, T. Pham, and N. Ho. Improving mini-batch optimal transport via partial transportation. *International Conference on Machine Learning (ICML)*, 2022.

6. 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. *International Conference on Machine Learning (ICML)*, 2022.

# **Pre**prints

1. **D. Nguyen**, W. Yang, R. Anand, Y. Yang and B. Mirzasoleiman. Mini-batch Coresets for Memory-efficient Training of Large Language Models. 2024.

# **Pro**fessional services

- Reviewer at Conference on Neural Information Processing Systems (NeurIPS) 2022-2024 (Top reviewer)
- Reviewer at the International Conference on Machine Learning (ICML) 2023-2025
- Reviewer at the International Conference on Learning Representations (ICLR) 2024-2025
- Reviewer at the International Conference on Artificial Intelligence and Statistics (AISTATS) 2023-2025
- Program Committee at New Frontiers in AdvML@NeurIPS2024

# **Hon**ors & Awards

### INTERNATIONAL

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|---|---|---|
| 2023 | **UCLA Graduate Dean's Scholar Award**, UCLA | *California, USA* |
| 2017 | **Toyo Top Global Scholarship A**, Toyo University | *Tokyo, Japan* |
| 2015 | **Silver medal**, 56th International Mathematical Olympiad | *Chiang Mai, Thailand* |

### DOMESTIC

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| 2015 | **First Prize**, Vietnam Mathematical Olympiad | *Hanoi, Vietnam* |
| 2014 | **Second Prize**, Vietnam Mathematical Olympiad | *Hanoi, Vietnam* |