Wonjun Lee

Assistant Professor at the Ohio State University

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Research Interests

Focusing on developing PDE-based algorithms to solve high-dimensional machine learning problems and analyze the theoretical properties of the algorithms using tools of PDEs.

Keywords: Machine learning, deep learning, generative modeling, contrastive learning, optimal transport, gradient flows, mean field games.

Academic Positions

The Ohio State University *Columbus, OH*
Assistant Professor at the department of mathematics *Aug 2025 - Present*

University of Minnesota, Twin Cities *Minneaplis, MN*
IMA-NIST Postdoctoral Fellow *Aug 2022 - Aug 2025*

University of California, Los Angeles *Los Angeles, CA*
Assistant Adjunct Professor *Jun 2022 - Aug 2022*

Education

University of California, Los Angeles *Los Angeles, CA*
Ph.D. in Mathematics. *Sep 2017 - Jun 2022*

George Mason University *Fairfax, VA*
B.S. in Mathematics *May 2015*

Selected Publications

- **W. Lee**, R. O'Neill, D. Zou, J. Calder, G. Lerman, *Geometry-Preserving Encoder/Decoder In Latent Generative Models*, Preprint.
- J. Calder, W. Lee, *Understanding Contrastive Learning through Variational Analysis and Neural Network Optimization Perspectives*, Preprint.
- **W. Lee**, Y. Yang, D. Zou, G. Lerman, *Monotone Generative Modeling via a Gromov-Monge Embedding*, SIAM Journal on Mathematics of Data Science, 2025
- **W. Lee**, L. Wang, W. Li, *Deep JKO: Time-Implicit Particle Methods For General Nonlinear Gradient Flows*, Journal of Computational Physics, 2024
- Y. Yang, **W. Lee**, D. Zou, G. Lerman, *Improving Hyperbolic Representations via Gromov-Wasserstein Regularization*, ECCV, 2024
- A. Vepa et al. *Weakly-Supervised Convolutional Neural Networks for Vessel Segmentation in Cerebral Angiography*, WACV, 2022

Skills and Hobbies

Programming C/C++, Python (PyTorch, Tensorflow), MATLAB
Language English, Korean