Hoang-Son Nguyen (Sean)

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RESEARCH INTERESTS

With experience in **identifiable representation learning** and **graph learning**, I aim to develop design principles for generative models where causal understanding of the world emerges naturally in their latent representations learned from sensory data. This would enable a world model with robust generalizability to unseen scenarios — a trustworthy and interpretable backbone for robust sequential decision making, counterfactual reasoning, and compositional generation.

EDUCATION

Master of Science in Artificial Intelligence *Sep. 2024 - (Expected) June 2026*
Oregon State University (Advisor: Xiao Fu) Current GPA : 3.95/4.0

Bachelor of Engineering in Artificial Intelligence *Sep. 2019 - Mar. 2024*
The Chinese University of Hong Kong (Advisor: Hoi-To Wai) First Class Honours

PUBLICATIONS

1. Diverse Influence Component Analysis: A Geometric Approach to Nonlinear Mixture Identifiability,
Hoang-Son Nguyen, Xiao Fu,
Advanced in Neural Information Processing Systems (**NeuRIPS**), 2025. [PDF]

2. Learning Graphs from Smooth Signals under Partial Observations: A Robustness Analysis,
Hoang-Son Nguyen, Hoi-To Wai,
Graph Signal Processing Workshop (**GSPW**), 2025, [PDF]
(Under Review) *International Conference on Acoustics, Speech and Signal Processing* (**ICASSP**), 2026.

3. On Detecting Low-Pass Graph Signals under Partial Observations,
Hoang-Son Nguyen, Hoi-To Wai,
IEEE Sensor Array and Multichannel Signal Processing Workshop (**SAM**), 2024. [PDF]

4. On the Stability of Low Pass Graph Filter with a Large Number of Edge Rewires,
Hoang-Son Nguyen, Hoi-To Wai,
International Conference on Acoustics, Speech and Signal Processing (**ICASSP**), 2022. [PDF]

HONORS & AWARDS (SELECTED)

Best Student Paper Award, IEEE SAM *Jul. 2024*
For the best student works at IEEE Sensor Array and Multichannel Signal Processing Workshop.

Charles K. Kao Research Scholarship *Mar. 2023*
For outstanding achievements in undergraduate research at CUHK.

WORKSHOPS & PRESENTATIONS

Graph Topology Learning with Smooth Signals under Partial Observations *May 2025*
Graph Signal Processing Workshop, Montreal, Canada.

Graph Learning with Low-pass Graph Signal Processing *Sep. 2024*
Faculty of Data Science & AI at National Economics University, Hanoi, Vietnam.

MISCELLANEOUS

Coursework: Optimization, Tensor Methods, Online Learning, Information Theory, Simulation, Approximation Theory, Functional Analysis, Stochastic Models, Linear Systems and Control, Time Series, Graphical Models, ML Theory.

Programming: Python, C/C++, MATLAB, PyTorch, Git, Linux, Hadoop/Spark, LaTeX.

Reviewer: Causality and Large Models @ NeuRIPS (2024), IEEE ICASSP (2025), IEEE TSP (2025), ICLR (2026).