Jaemoo Choi

Email: jchoi843@gatech.edu   Homepage: jaemoo-choi.github.io

RESEARCH INTEREST

Generative AI, AI for science, Boltzmann distribution sampling, Diffusion/LLM fine-tuning, Optimal Transport, Schrödinger bridge, Stochastic optimal control

EDUCATION

Georgia Institute of Technology   Atlanta, GA
Postdoctoral Associate   09/2024 – present
Advisor: Yongxin Chen

Seoul National University (SNU)   Seoul, Korea
Ph.D. *in Mathematical Sciences*   03/2018 – 08/2024
Advisor: Myungjoo Kang

Seoul National University (SNU)   Seoul, Korea
B.S. *in Mathematics Education*   03/2014 – 02/2018

PUBLICATIONS
*Equal contribution ⋆Core contributors †Equal advising

Conference Papers

[C1] Adjoint Schrodinger Bridge Sampler   [Oral, 0.3%]
Guan-Horng Liu⋆, **Jaemoo Choi**⋆, Yongxin Chen, Benjamin Kurt Miller, Ricky T. Q. Chen⋆
Advances in Neural Information Processing Systems (NeurIPS), 2025

[C2] Non-equilibrium Annealed Adjoint Sampler
Jaemoo Choi⋆, Yongxin Chen, Molei Tao, Guan-Horng Liu⋆,
Advances in Neural Information Processing Systems (NeurIPS), 2025

[C3] MDNS: Masked Diffusion Neural Sampler via Stochastic Optimal Control
Yuchen Zhu*, Wei Guo*, **Jaemoo Choi**, Guan-Horng Liu, Yongxin Chen†, Molei Tao†
Advances in Neural Information Processing Systems (NeurIPS), 2025

[C4] Overcoming Spurious Solutions in Semi-Dual Neural Optimal Transport: A Smoothing Approach for Learning the Optimal Transport Plan
Jaemoo Choi, Jaewoong Choi†, Dohyun Kwon†
International Conference on Machine Learning (ICML), 2025

[C5] Unsupervised Point Cloud Completion through Unbalanced Optimal Transport
Taekyung Lee, **Jaemoo Choi**, Myungjoo Kang[†], Jaewoong Choi[†],
International Conference on Machine Learning (ICML), 2025

[C6] Robust Barycenter Estimation using Semi-Unbalanced Neural Optimal Transport
Milena Gazdieva[*], **Jaemoo Choi**[*], Alexander Kolesov, Jaewoong Choi, Petr Mokrov,
Alexander Korotin,
International Conference on Learning Representations (ICLR), 2025

[C7] Improving Neural Optimal Transport via Displacement Interpolation
Jaemoo Choi, Yongxin Chen, Jaewoong Choi,
International Conference on Learning Representations (ICLR), 2025

[C8] Scalable Wasserstein Gradient Flow for Generative Modeling through Unbalanced
Optimal Transport
Jaemoo Choi[*], Jaewoong Choi[*] and Myungjoo Kang
International Conference on Machine Learning (ICML), 2024

[C9] Analyzing and Improving OT-based Adversarial Networks
Jaemoo Choi[*], Jaewoong Choi[*] and Myungjoo Kang
International Conference on Learning Representations (ICLR), 2024

[C10] Generative Modeling through the Semi-dual Formulation of Unbalanced Optimal
Transport
Jaemoo Choi[*], Jaewoong Choi[*] and Myungjoo Kang
Advances in Neural Information Processing Systems (NeurIPS), 2023

[C11] Restoration based Generative Models
Jaemoo Choi[*], Yesom Park[*] and Myungjoo Kang
International Conference on Machine Learning (ICML), 2023

Preprints

[P1] Proximal Diffusion Neural Samplers
Wei Guo[*], **Jaemoo Choi**[*], Yuchen Zhu, Molei Tao, Yongxin Chen
preprint, 2025

[P2] Enhancing Reasoning for Diffusion LLMs via Distribution Matching Policy Optimization
Yuchen Zhu[*], Wei Guo[*], **Jaemoo Choi**, Petr Molodyk, Bo Yuan, Molei Tao,
Yongxin Chen
preprint, 2025

HONORS & AWARDS

Best Reviewer for NeurIPS 2024	2024
Nurturing Next-generation Researchers Postdoctoral Fellowship (\$ 45000)	2024
Brain Korea Phase IV Research Scholarship	2024
Brain Korea Phase IV Research Scholarship	2021 – 2022
Lecture & Research Scholarship, SNU	2020 – 2021
Outstanding TA Awards, SNU	2019
Brain Korea 21 Plus Research Scholarship	2018 – 2020
Beakwoon Academic Excellence Scholarship	2018
Academic Excellence Scholarship, SNU	2015 – 2017
Chungkwan Academic Exellence Scholarship, SNU	2014

INVITED TALKS

[T1] Optimal Transport Guest Lecture, Georgia Tech   03/2025
Unbalanced Optimal Transport and its Application to Estimate Wasserstein Gradient Flow and the Robust Barycenter Distribution

[T2] Level Set Seminar, UCLA   11/2024
Algorithms for Optimal Transport, the Barycenter Problem, and Their Applications

[T3] FLAIR Seminar, Georgia Tech   10/2024
Recent Works on Inverse Problem via Diffusion Models

[T4] Stanford Research Institute (SRI)   07/2024
Various Formulations of Optimal Transport Problems and Its Application to Generative Modeling

[T5] Center for AI Natural Sciences, KIAS   03/2024
Various Formulations of Optimal Transport Problems and Its Application to Generative Modeling

[T6] Research laboratory performance presentation, University of Seoul   02/2024
Generative Modeling through the Semi-dual Formulation of Unbalanced Optimal Transport

[T7] Seoul AI Hub Conference, AI Seoul   02/2024
Analyzing Optimal Transport-based Adversarial Algorithms

[T8] 2024 Winter Workshop on PDE and Applied Mathematics, KAIST   01/2024
Bridging Two Distributions through Optimal Transport

[T9] Medical Imaging AI Leading Innovation Center, SNU   12/2023
Generative Modeling through the Semi-dual Formulation of Unbalanced Optimal Transport

[T10] Samsung Electronics Science Project Worshop, Samsung Electronics   08/2023
Distributional Matching between Wafer Datasets

[T11] Samsung Electronics Science Project Workshop, Samsung Electronics   03/2023
Feature Extraction from Wafer Map Datasets

TEACHING & ASSISTANCE EXPERIENCE

Optimal Transport, Georgia Tech   Spring 2025

Calculus I, II, SNU,   Spring 2018, Fall 2018, Fall 2019

Engineering Mathematics, SNU,   Spring 2020

Mathematics for Life Sciences I, II, SNU   Fall 2020, Fall 2022, Spring 2023

Mathematical Analysis, SNU,   Fall 2021, Spring 2022

Computer Application for Scientific Computation, SNU   Spring 2021

ACADEMIC SERVICES

NeurIPS, ICLR, ICML reviewer   2024 - present

Automatica reviewer   2024

TMLR reviewer   2024 - 2025

OTHER PROJECTS

Advancing Scalability, Efficiency, and Stability in Algorithms for Transport Problems
National Research Foundation of Korea (NRF)   09/2024 - 08/2025

Automatic Real-world Video Enhancement
4BY4   09/2022 – 06/2023

Time Series Data Interpolation using Automatic Feature Extraction of Senor Data
Samsung Electronics   03/2021 - 12/2021

Automatic Feature Extraction of Sensor Data,
Samsung Electronics   03/2020 – 12/2020

CERTIFICATES

Secondary (Middle/High) School Teacher Certificate   02/2018