SUJONG LEE

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EDUCATION

Nanyang Technological University (NTU), Singapore *Aug 2020 – May 2026*
B.Eng. in Electrical and Electronics Engineering (Minor in Mathematics)
GPA: 4.50/5.0 (Highest Distinction)

RESEARCH INTERESTS

Generative Models	Diffusion Models, Flow Models and their theoretical foundations
Neural Samplers	Diffusion-based samplers
AI4Science	Machine Learning for Materials Discovery

My research interests broadly lie in applied mathematics for machine learning. I am specifically interested in mathematical understanding and efficiency of neural network and generative model. Recently, I am studying diffusion model, flow model and their variations in connection to optimal transport and stochastic control.

PUBLICATIONS

1. **Sujong Lee**, P. Jutras-Dubé, B. Wen, R. Zhang. "Neural Discrete Controlled Monte Carlo Samplers." *Under Review*

RESEARCH EXPERIENCES

Undergraduate Research Intern *Jun 2025 - Ongoing*
Supervisors: Ruqi, Zhang Purdue University, Remote

· Research Topic: Sampling problem in discrete domain
· Based on PIS-like loss with KL divergence minimization and terminal cost via discrete RND
· Discrete diffusion model for simulation of the CTMC process with Gumbel-Softmax relaxation for computation of the terminal cost

Undergraduate Research Intern *Jan 2025 - May 2025*
Supervisors: Wen, Bihan ROSE Lab@NTU, Singapore

· Research Topic: Generative AI empowered synthetic data/image generation
· Accelerating inference speed in diffusion model via Hamilton-Jacobi regularization
· Imposing architectural constraint and auxiliary term for theoretical guarantees of straight trajectory in single training

Undergraduate Research Intern *Mar 2022 - Jun 2022*
Supervisors: Taehyoung (Tony), Kim NTU, Singapore

· Research Topic: Design and Analysis of Neural Network
· Investigation of basic CNN models such as LeNet and ResNet

Undergraduate Research Experience on Campus (URECA) *Sep 2021 - Jun 2022*
Supervisors: Donguk, Nam NTU, Singapore

· Research Topic: Strain-engineered quantum device towards integrated quantum photonic chips
· Comparative analysis on PLE spectrum of various semiconductors for photonic waveguide
· FDTD simulational analysis using Ansys Lumerical software

WORK EXPERIENCES

AI Researcher Intern *Oct 2025 - Onward*
NanoforgeAI, Korea

- Research on application of neural sampler on material discovery

AI Research Engineer Intern *Mar 2024 - Jun 2024*
Paradot (Carat), Korea

- Launched a new service on diffusion-based appearance transformation
- Migrated existing T2I image generation service from external API to SDXL with optimization of parameter and inference

Sergeant *Sep 2022 - Mar 2024*
SEC Research Center, Korea

- National service in Republic of Korea Army (2022-2024)
- Developed and modified an internal program for military use

HONOURS/AWARDS

NTU President Research Scholar
Dean's List AY2024/2025 Awarded to the Top 5% of the Cohort