

KI-UNG SONG

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Problem Solver Who Wants To Change the World.

Please visit my website to explore more about me.

EDUCATION

Seoul National University (SNU)

Seoul, Korea

M.S. in Mathematical Sciences; GPA: 4.23/4.3

Sep 2020 – Aug 2022

- College of Natural Sciences Master's Program Valedictorian

B.S. in Mathematical Sciences; GPA: 3.85/4.3

Mar 2016 – Aug 2020

- Minor in Industrial Engineering

SKILLS

Core Competencies:

- **Mathematical Proficiency:** Expert in applying mathematical concepts and related tools to solve the given problems. Also skilled in explaining sophisticated theories to non-experts.
- **Endless Curiosity:** Rapid learner, continuously expanding expertise in Mathematics and Engineering, with a strong pursuit of new knowledge.

Technical Skills:

- Languages: Python, C++, MATLAB, R, CUDA
- Tools: Pytorch, Tensorflow, Huggingface, MLflow, Triton / Git, Docker / HTML, Jekyll

EXPERIENCE

Nota AI Inc.

Seoul, Korea

AI Research Engineer

Jul 2024 – Current, Full-time

- Working on VLM for on-device applications to solve real-world problems.

Deargen Inc.

Seoul, Korea

AI Scientist

Sep 2022 – Jun 2024, Full-time, Alternative Military Service

- Developed a universal representation learning framework for molecules, from small atoms to large proteins, incorporating a modified contrastive loss mechanism to capture both molecular similarities and interactions.
- Developed a molecular generation model adapted from Stable Diffusion architecture to enable targeted, controllable production of pocket-specific molecules.
- Enhanced a molecular interaction prediction model by introducing a new loss objective to utilize additional data, addressing data biases and integrating multimodal feature-mixing techniques. This also resolved issues with model reliability.

Deepest

Seoul, Korea

Member of Deepest: Deep learning society of SNU

Oct 2021 – Current

- Hosted presentations of the following topics; "Neural tangent kernel", "Diffusion model and Schrödinger Bridge", "Equivariance for DL", "Singular Learning Theory", and "Neural Solver Towards Future of Simulation".
- Participated in the following projects: "Offline RL Project", "NTIRE 2022 Challenge Team", "MLOps Project", "DeepMind Project", "Parallel Computing Study", "DL for Simulation".

Growth Hackers

Seoul, Korea

Member of Growth Hackers: Business Data Analysts

Mar 2020 – Dec 2020

- Experienced many real-world problems by working with actual company data through an industry-academia collaboration, focusing on data analysis and modeling.
- Participated in the following projects with various companies: "RecSys Modeling with Mathpresso", "Automating Delivery Area Assignment with Timfresh", and "RecSys Modeling with Educast".

PROJECTS

LLM4Finance

May 2023 – Current

- Developing an LLM-powered finance dashboard for personal investment with additional financial engineering techniques.
- LLMs are utilized for various tasks: sentiment prediction, financial statement analysis, and data management.

NTIRE 2022 Challenge Team

Nov 2021 – April 2022

- Participated in NTIRE 2022 at CVPR, focusing on high-frequency information in super-resolution.

- The project proceeded based on the idea that the key information in super-resolution images is in the high-frequency domain.
- Achieved Rank #2 for $\times 4$ track and Rank #1 for $\times 8$ track of “Learning the Super-Resolution Space Challenge” with findings published in CVPR 2022 Workshops.

RecSys Modeling with Mathpresso

Apr 2020 – Jun 2020

- Constructed a predictive model for RecSys.
- Analyzed the model’s embedding vector and obtained explainable performance insights.
- Based on the analysis, provided advice on the effectiveness of DL-based RecSys for the given data scenarios.

PUBLICATION

Applying Regularized Schrödinger-Bridge-Based Stochastic Process in Generative Modeling

Arxiv Preprint

Ki-Ung Song

Github

FS-NCSR: Increasing Diversity of the Super-Resolution Space via Frequency Separation and Noise-Conditioned Normalizing Flow

CVPR 2022 Workshops

Ki-Ung Song*, Dongseok Shim*, Kang-wook Kim*, Jae-young Lee, Younggeun Kim

Github