Jonghyun Lee (Thomas Lee)

405, Gaepo-ro, Gangnam-gu, Seoul, Republic of Korea

☏ +82–10-4972-5446
✉ jonghyunlee1103@gmail.com
⌗ GitHub
in Linkedin
⤷ Blog

AI Research Scientist
Generative Models, Diffusion (Score-Based) Models

EDUCATION

Korea University   August 2024, expected
M.S. in Industrial Management Engineering   *Current GPA: 4.13/4.5*
Korea University   August 2022
B.S. in Industrial Management Engineering   *GPA: 3.2/4.5*
Jakarta International School   June 2015
High School Diploma, International Baccalaureate (IB) Program

COURSEWORK

Courses: Computer Vision, Theories and Applications of Deep Learning, Cloud Computing, Unstructured Data Analysis, Principles and Applications of Machine Learning, Business Analytics

SKILLS

Python Libraries: PyTorch, OpenCV, Detectron2, Torchvision, Diffusers, Transformers, Einops, NumPy, Pandas
Tools: Git/GitHub, Docker, Unix Shell, CUDAToolkit, VS Code, Slack, Obsidian

PUBLICATIONS

[ICLR 2024] Compose and Conquer: Diffusion-Based 3D Depth Aware Composable Image Synthesis
- First Author, accepted to ICLR 2024, poster
- Developed a training paradigm called *DDS* (Depth Disentanglement Training) that allows a diffusion model to identify the absolute three-dimensional position of unseen/obstructed objects
- Proposed an inference algorithm called *Soft Guidance* that imposes global semantics onto targeted regions without the use of any additional localization cues
- Developed and trained a diffusion model that combines DDS and Soft Guidance, *Compose and Conquer* (CnC), capable of synthesizing images with localized multiple conditions in a disentangled manner

[ICLR 2024] Noise Map Guidance: Inversion with Spatial Context for Real Image Editing
- Second Author, accepted to ICLR 2024, poster
- Aided developing *Noise Map Guidance*, a diffusion PF-ODE inversion method designed for real image editing

[CVPR 2024] One-Shot Structure-Aware Stylized Image Synthesis
- Second Author, accepted to CVPR 2024
- Aided developing a diffusion model capable of style transfer with a single exemplar image (One shot stylization)

AWARDS AND HONORS

AI Spark Challenge | Final Selection   Apr. 2022
Ministry of Science and ICT lead AI Tournament
Leader of team IRDIS, developed and trained a satellite-image segmentation model, developed a disaster response solution ranking areas in need of immediate rescue via segmentation maps and the Analytical Hierarchy Process

KUIAI Hackathon | 3rd Place in Finals/20 teams   Jan. 2022
Korea Electronics Technology Institute (KETI) lead AI Hackathon
Leader of team Journey Lee, developed and serviced a Multi-polygon map based AI Location recommendation system for optimal commercial success of startups

Smart Campus Datathon | 2nd Place in Finals/15 teams   Sep. 2021
Korea University Datahub lead AI Datathon
Leader of team Peachtree, developed and serviced an unsupervised embedding model based scholarship parsing/recommendation system for Undergrad. Students in Korea University

K-Data Datacampus | 2nd Place in Finals/40 teams   Sep. 2021
Korea Data Agency lead AI Tournament
Leader of team Gillajabi, developed and trained a transformer based Audio-Image Korean phoneme recognition model, developed a Levenshtein distance based character-error rate (CER) metric, serviced a web-app for Korean word pronunciation correction

Work Experience

NAVER Cloud | Intern   Jun. 2023 - Dec. 2023

- AI Researcher, Creativity LAB, ImageVision Team
- Research, architecture design, training, and deployment of composable image synthesis diffusion models
- PoC. of real image editing and style transfer via diffusion models

Projects

Project Lifecycle Management (PLM) System LLM Development | Hyundai Mobis   Mar. 2023 - Nov. 2023

- Preprocessed unstructured document/text data from Hyundai Mobis's PLM system, trained a custom KoBERT model with additional pooling heads for embedding PLM text queries
- Developed an embedding similarity based algorithm that queries text input and PLM documents through a graph-based visualization interface

Graph Neural Network Based Recommendation System Development | Korea Univ.   Sep. 2022 - Dec. 2022

- Developed and trained a SentenceBERT model for embedding coursework data of Korea University
- Developed a Directed Multigraph of student/coursework relationships via Bayesian Inference
- Trained a GraphSAGE (GNN) recommendation model that recommends future coursework for students based on past coursework and coursework reviews

Extra-Curricular Activities

Founders | Founding Member, Society President   Feb. 2022 - Jan. 2024

Founding Member of *Founders*: A Startup Academic Society for students in Seoul National University, Yonsei University, Korea University, KAIST, POSTECH

Language Skills

English | Native
TOEIC ETS: 975
OPIc: AL (Advanced Low)