SANGWON JEONG

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SUMMARY

My research employs interactive visualization to demystify Machine Learning models. By converting complex AI behaviors into clear, visual forms, it aids in making AI's decisions understandable to all, contributing significantly to the field of Explainable AI.

Principal Interests: Machine Learning, Explainable AI, Visualization, Software Engineering, Generative Models

Major Skills: Python, JavaScript, Java, C++, PyTorch, D3.js, AWS, OpenAI API, React, ObservableHQ, Reserach Design

EDUCATION

PhD in Computer Science Expected 2025
Vanderbilt University

MSc in Computer Science May 2020
Vanderbilt University

BA in Business Administration March 2018
Seokyeong University

RESEARCH EXPERIENCE

Computing Scholars, Lawrence Livermore National Laboratory January 2023 - August 2023

- AI research project collaborating with domain experts in material science to build a **generative model** to aid in new material discovery. The visualization tool built for this purpose enables browsing through 80000+ AI-generated images in a minute.

PhD Researcher, Vanderbilt University January 2021 - current

- Developing and studying explainable AI methods for image generative models (GAN, Diffusion model). Papers published in EuroVis and IEEEVis.
- **LLM evaluation** uncertainty calibration via persona sampling. Evaluating **context compression** performance in LLM.
- Developing Domain-specific language for **LLM intervention** methods.

Senior Researcher, Korea Institute of Industry Convergence October 2020 - January 2021

- Application of classic **Natural Language Models** in construction management for document sorting. Paper published.
- Application of **Computer Vision Models** for construction progress tracking. Paper published.

Student Researcher, Tonglab - Vanderbilt University February 2019 - February 2020

- Studied neuro-inspired CNN architectures to develop a Gabor filtered-based CNN for improving on noisy input. The network received 8-12% accuracy improvement in the noisy image classification task.

SOFTWARE EXPERIENCE

Startup Co-founder, MovTrack October 2018 - January 2020

- Ideation and research of consumer market oriented product. I was responsible for implementing and maintaining **backend database** as well as designing and implementing frontend **Android application**. Program deployed in a **cloud infrastructure** (AWS) which I was in charge of managing.

Software Engineer, KICM March 2018 - July 2018

- Project for a **data-processing** automation programs for construction management research and a cost estimation project.

MANAGERIAL EXPERIENCE

Student Organization President, Korean Student and Scholars Association at Vanderbilt August 2021 - July 2024

– Lead an organization of 60 people. Successfully held 10+ large-scale events.

Squad Leader, Korean Military June 2012 - November 2014

– In charge of a combat squad of size 8. Practiced quick decision making under pressure.

CONFERENCE/JOURNAL PAPERS

A work on explainable AI, *under review* 2024
TVCG

Text-based transfer function design for semantic volume rendering 2024
S. Jeong et al. IEEE Visualization

CAN: Concept-aligned Neurons for Visual Comparison of Neural Networks 2024
Eurovis

Concept Lens: Visually Analyzing the Consistency of Semantic Manipulation in GANs 2023
S. Jeong et al., IEEE Visualization

Interactively assessing disentanglement in GANs 2022
S. Jeong et al., Eurovis

Enhancing Work Trade Image Classification Performance Using a Work Dependency Graph 2021
S. Jeong et al., Korean Journal of Construction Engineering and Management

Comparing string similarity algorithms for recognizing task names found in construction documents 2020
S. Jeong et al., Korean Journal of Construction Engineering and Management