

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

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

- **Artificial Intelligence & Visualization** research project collaborating with Material Science domain experts to build an interactive visualization that enables users to understand and browse semantic concept existing in generative models' latent space. Paper published.

PhD Researcher Vanderbilt University January 2021 - current

- Research focus in **Machine Learning** and **Explainable AI**. Key contributions are understanding generative models' latent data representation via interactive visualization system.

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

- **Neuroscience**-inspired convolution neural network architectures - Developed networks using Gabor filters for improving noise robustness. The modified network achieved 8 - 12% accuracy improvement on noisy dataset.

SOFTWARE EXPERIENCE

Software Engineer, ABC Design Group LLC May 2020 - October 2020

- Contract work: Unity software development for the Internet of Things (IoT) application.

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**. Our program was hosted on **cloud infrastructure** (AWS) which I was in charge of managing.

Software Engineer, Korea Institute of Construction Management March 2018 - July 2018

- Writing **Java** programs for automating data-processing pipelines in construction research. Such as work log data processing, contract listing data retrieval. 4 - 5 hours of work automated to run in a minute.
- Automation in the estimation of construction costs. Aided and consulted in cost estimation department.

MANAGERIAL EXPERIENCE

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

- Leading student organization in various cultural promotion events. During my time, I've managed to have more people participate (40-50 people events).

Squad Leader, Korean Military June 2012 - November 2014

- In charge of a combat squad of size 6-8. Incapable soldiers were often assigned to my squad due to my exceptional ability to dig good talent in them to utilize their potential.

CONFERENCE/JOURNAL PAPERS

A work on explainable AI, <i>under review</i>	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	