Sangwoo Ha

AI Research Engineer

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AI researcher and engineer with six years in medical imaging and computer vision. I led the DEEP:CHEST chest X-ray CAD team at Deepnoid, then built a cervical-cell detection model that shipped in Noul's cleared miLab CER. The work covers detection and segmentation, product integration, and on-device deployment, plus vision systems and LLM-based reporting.

Experience

Noul

Aug 2023 - Aug 2026

AI Research Team · AI Research Engineer

- Built the miLab CER cervical-cell detector and shipped it in the cleared product. Designed the pipeline from whole-slide images to field-of-view and cell-level analysis.
- Trained a YOLO-based on-device detector and quantized it for Jetson Nano and TX2. The lighter model ran on the miLab device.
- Used pseudo-labeling and a teacher-student setup to add about 30% more labels per class, with about a 20% gain in detection. CellSAM and Cellpose were part of the labeling work.
- Applied stain normalization across devices and slides, and used t-SNE to catch mislabeled samples.
- Researched Diffusion, DiT, and StyleGAN models for extra training samples, and designed a DINOv3-based foundation-model architecture. Both stayed at the research and design stage.
- Designed a draft-report setup with MedGemma and other LLMs. This was an experiment, not a product feature.

HumanICT

May 2022 - Aug 2023

AI Research Team · Software Engineer

- Sole engineer for the AI models in Alphai PlantVision, detecting fire, smoke, missing helmets, and vehicles on construction-site CCTV.
- Worked with the Hyundai E&C team toward site deployment. The work reached PoC and was not installed on site.
- Used TensorRT to compress models and speed up inference so they ran in real time on limited CCTV hardware, cutting AI system cost by about 90% at the same accuracy.
- Fed pixel differences between frames into post-processing to improve detection.

Deepnoid

Jul 2020 - May 2022

AI Research Team · Software Engineer · DEEP:CHEST lead

- Led the DEEP:CHEST group (three people including myself). Designed models that read consolidation and pneumothorax on chest X-rays and marked lesion locations. The work went through a clinical trial and MFDS clearance (제허 21-841) as DC-XR-03.
- Designed TransUNet-based semi-supervised learning for about 60,000 chest X-rays where only 40-50% had mask labels.
- Built multi-finding read and localization models for DC-XR-04, covering lung cancer, atelectasis, heart failure, nodules, and pleural effusion.

Publication

Lee, S.Y., **Ha, S.**, Jeon, M.G. et al. Localization-adjusted diagnostic performance and assistance effect of a computer-aided detection system for pneumothorax and consolidation. *npj Digital Medicine* 5, 107 (2022). Co-first author.

CAD work for pneumothorax and consolidation. DOI: https://doi.org/10.1038/s41746-022-00658-x

Education

UNIST

Mar 2017 - Feb 2020

M.S. in Computer Science · ART lab · Advisor Tsz-chiu Au

Thesis: Predicting the Location of Injured People in Disaster Zones using Deep Learning. The model predicted injured-person locations and density from RoboCup Rescue Simulation video, using CNN/LSTM and an extended attention module (gCBAM).

Kyung Hee University

Mar 2012 - Feb 2016

B.S. in Electronic Engineering and Computer Science (double major)

Military service

Jul 2020 - Jul 2023

Technical research personnel (전문연구요원)

Skills

AI · vision	Python, PyTorch, TensorFlow, OpenCV, detection, segmentation, semi-supervised learning, generative models, quantization
Deploy	TensorRT, NVIDIA Jetson, Linux, Shell
Tools	JavaScript/TypeScript, React, Node.js, Tauri/Rust

Languages

Korean	Native
English	Strong reading, writing, and speaking. Research with a non-Korean advisor; work with non-Korean teammates.