Chang-Hyeon **An**

DEEP LEARNING ENGINEER · COMPUTER VISION & MEDICAL IMAGE PROCESSING

Intelligent Computer Vision Software Laboratory (ICVSLab.), Department of Electronic Engineering, Yeungnam University 301-1 E22, 280 Daehakro, Gyeongsan, Gyeongbuk, 38541 Korea

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"The only person you should try to be better than is the person you were yesterday."

Education

Yeungnam University   *Gyeongsan, S.Korea*

M.S. IN ELECTRONIC ENGINEERING   *Mar. 2022 - Present*

- Research Areas: Image generation, medical image processing (X-ray image), and semiconductor process predicting.
- Advisor: Prof. Hyun-Chul Choi

Yeungnam University   *Gyeongsan, S.Korea*

B.S. IN ELECTRONIC ENGINEERING   *Mar. 2016 - Feb. 2022*

- GPA: 4.08 / 4.5, (Major: 4.21 / 4.5)
- Magna cum Laude, Top 11.5%

Skills

Programming   Python, PyTorch, Flask, Matlab
Tools   LaTeX, Notion, Github, WandB
Languages   Korean, English (OPIc: IH-Intermediate High)

Projects

Vertebral landmark detection on X-ray image   *M.S.*

MEDICAL IMAGE PROCESSING   *Jan. 2022 - Present*

- Detect the corner points of the lumbar vertebrae and sacrum(S1).
- Demo

Predict Semiconductor Processing Result (Collaborated with POSTECH)   *B.S. - M.S.*

MACHINE LEARNING FOR SEMICONDUCTOR   *Mar. 2022 - July 2023*

- Predict the results of the semiconductor process.

Pose Transfer   *B.S. - M.S.*

IMAGE GENERATION (GENERATIVE ADVERSARIAL NETWORK)   *Mar. 2021 - July 2023*

- In the human domain using a dataset consisting of lab members' videos. (Mar. 2021 - July. 2021)
- In the cartoon domain and the human domain using datasets consisting of Mixamo and Fashion Dataset. (Nov. 2021 - July 2023)
- Project Page

Motorcycle motion-based automatic illegal driving detecting system (Graduation Project)   *B.S.*

OBJECT DETECTION & ACTION RECOGNITION   *May 2021 - Nov. 2021*

- Determine whether a detected motorcycle is illegally driven at a crosswalk.

Take Off Your Mask!   *B.S.*

IMAGE GENERATION (GENERATIVE ADVERSARIAL NETWORK)   *Jan. 2021 - Apr. 2021*

- Hire people for constructing a server and making an application, and develop an application to remove masks from a mask-wearing image.
- Demo

Awards

Naver Paper Award   *M.S.*

ANNUAL SUMMER CONFERENCE OF THE INSTITUTE OF ELECTRONICS AND INFORMATION ENGINEERS (IEIE)   *June 2022*

- Cartoon Pose Transfer
- Image, Paper

Graduation Project 1st Prize   *B.S.*

ELECTRONIC ENGINEERING DEPARTMENT OF YEUNGNAM UNIVERSITY   *Dec. 2021*

- Automatic Motorcycle Illegal Driving Detection System
- Image

Patents

FEATURE POINT ANALYSIS METHOD AND APPARATUS IN X-RAY IMAGE   *S.Korea*

PATENT APPLICATION   *May. 2023*

- Landmark Detection of Lumbar Vertrae and First Sacral Vertebra on X-ray Images.
- 10-2023-0063653

Apparatus and method for pose transformation   *S.Korea*

PATENT APPLICATION   *Aug. 2022*

- Cartoon Pose Transfer.
- 10-2022-0106683

Method Of Detecting ILLEGAL DRIVING AND APPARATUS THEREOF   *S.Korea*

PATENT APPLICATION   *Dec. 2021*

- Determine whether a detected motorcycle is illegally driven at a crosswalk.
- 10-2021-0177678

Publications

INTERNATIONAL

GLCANet: Glocal Context-Aware Vertebral Landmark Detection Network on X-ray Image

CHANG-HYEON AN, JUN-SOO JANG, and HYUN-CHUL CHOI.   *Sep. 2023*

- Image and Vision Computing, Under Review.

Cartoon Pose Transfer

CHANG-HYEON AN and HYUN-CHUL CHOI.   *Oct. 2023*

- Neurocomputing, vol. 554, 126619, DOI: 10.1016/j.neucom.2023.126619.

Accurate and Reliable Parameter Optimization of Regressional Neural Network for Semiconductor Technology Development

HYEOK YUN*, CHANG-HYEON AN*, HYUNDONG JANG, KYEONGRAE CHO, and JEONG-SIK LEE, SEUNGJOON EOM, CHOONG-KI   *July, 2023*
KIM, MIN-SOO YOO, HYUN-CHUL CHOI, and ROCK-HYUN BAEK (*EQUAL CONTRIBUTION)

- Advanced intelligent systems, 2300089, DOI: 10.1002/aisy.202300089.

Part Affinity Fields and CoordConv for Detecting Landmarks of Lumbar Vertebrae and Sacrum in X-ray Images

CHANG-HYEON AN, JEONG-SIK LEE, JUN-SOO JANG, and HYUN-CHUL CHOI.   *Nov. 2022*

- MDPI Sensors, vol. 22 (22), 8628, DOI: 10.3390/s22228628.

A Review of Multi-Modal Learning from the Text-Guided Visual Processing Viewpoint

UBAID ULLAH, JEONG-SIK LEE, CHANG-HYEON AN, HYEONJIN LEE, SU-YEONG PARK, ROCK-HYUN BAEK, and HYUN-CHUL   *Sep. 2022*
CHOI.

- MDPI sensors, vol. 22 (18), 6816, DOI: 10.3390/s22186816.

DOMESTIC

Cartoon Pose Transfer   *Jeju, S.Korea*

CHANG-HYEON AN and HYUN-CHUL CHOI.   *June, 2022*

- Annual Summer Conference of The Institute of Electronics and Information Engineers (IEIE)-link

Pose Transfer using AdaIN and Generative Adversarial Network   *Jeju, S.Korea*

CHANG-HYEON AN, JEONG-SIK LEE, SU-YEONG PARK, and HYUN-CHUL CHOI.   *July, 2021*

- Annual Summer Conference of The Institute of Electronics and Information Engineers (IEIE)-link

Experience

June 2023 **Attend**, Conference on Computer Vision and Pattern Recognition(CVPR) *Vancouver, Canada*

Oct. 2022 **Attend**, European Conference on Computer Vision(ECCV) *Tel Aviv, Israel*

July 2022 **Attend**, IEEE WORLD CONGRESS ON COMPUTATIONAL INTELLIGENCE(WCCI) *Padua, Italy*

July 2020 - **Research Intern**, Intelligent Computer Vision Software Laboratory(ICVSLab) *Yeungnam*
Feb. 2022 *University*