SIEKNY HOR

Address: 경기도 광주시 밭말길
Phone: 010-7916-9822
Email: sieknyhor@gmail.com
Website: https://siekny.github.io/

SUMMARY

I have experience in computer vision and deep learning, specializing in human detection, 3D pose estimation, object detection, segmentation, image classification, image translation, and image reconstruction. As a researcher, I am passionate about advancing deep learning technologies and software solutions. I am seeking an opportunity to contribute my diverse skills and experience to a company where I can create meaningful value.

WORK EXPERIENCE

AI 연구원, 삼성서울병원 **Sep 2024 - Mar 2025**

- Exploring advanced deep learning techniques for CT reconstruction from X-rays.
- Involving extensive data preprocessing.
- Designing and implementing models such as conditional GANs, and optimizing them.
- Evaluating model performance using relevant metrics.

IT Instructor, Korea Software HRD Center **Mar 2020 - Jun 2021**

- Regularly updated course materials to align with emerging technologies and evolving curriculum needs.
- Responsible for teaching Java programming, SQL database management, and React Native mobile app development.
- Designed and implemented curriculums to equip students with up-to-date technical skills.

EDUCATION

Master of Artificial Intelligence at 울산과학기술원, 대한미국 **Sep 2022 - Aug 2024**

- Research Interest in “Deep Learning, Computer Vision, Object Detection, Object Segmentation, 3D Hand Pose Estimation”.
- Thesis on “Rethinking Fast and Accurate 3D Hand Pose Estimation”, a lightweight graph-based network optimized for both accuracy and efficiency in 3D single-hand pose estimation.

Bachelor of Computer Science at Royal University of Phnom Peny, Cambodia **Nov 2016 - Oct 2020**

- Major in Computer Science.
- Project on "MyAlumni Web Application Project”, a comprehensive alumni information management system designed for efficient record management.

ADDITIONAL EDUCATION

Korean Language Program at 서경대학교, 대한미국 **Sep 2021 - Aug 2022**

- Being able to hold daily conversations in Korean.
- Achieving TOPIK Level 4.

Software Development Training at Korea Software HRD Center, Cambodia **Apr 2019 - Feb 2020**

- A full-time course with lectures, lab research, hands-on practice, tests, and project development.
- Developing a web project using HTML, CSS (frontend), PostgreSQL, and Spring Boot (backend).
- Working on an Android mobile app using Java.

PROJECT

CT Reconstruction from X-Ray Images

- Implementing an algorithm to generate X-ray images from CT scans due to limited CT and X-ray paired datasets.
- Designing a model for synthesizing CT from X-ray data using conditional GANs.
- Optimizing the model to reconstruct the detailed structure of CT, such as nodules.
- Evaluating the model performance using relevant metrics.

3D Hand Pose Estimation

- A lightweight graph-based network optimized for both accuracy and efficiency in 3D single-hand pose estimation.
- Designing leverages Chebyshev Graph Convolutions (ChebGConv) to streamline the 2D encoding process, reducing computational overhead.
- Introducing a coarse-to-fine ChebGConv module within the 3D decoder to progressively optimize hand mesh reconstruction, improving both accuracy and inference speed.
- Refining our model through ensemble distillation, transferring knowledge from high-performing teacher models to our model.

Human Detection

- An efficient real-time human detection model that accurately predicts occlusions and detects small or distant individuals.
- Integrating RT-DETR and Efficient-ViT, improving detection accuracy while maintaining efficiency.
- Implementing YOLOv8 + SAHI to enhance small-object detection, using Slicing-Aided Hyper Inference (SAHI) for improved processing of small and distant objects.

CERTIFICATE/LANGUAGE/AWARD

- **Certificate:**
  - Sister of Code Mentor
  - Software Development Training
  - Korean Language Training
- **Language:**
  - English
  - Korean (TOPIK 2, Level 4)
- **Award:**
  - Global Korean Scholarship (one year of Korean language program, and two years of master's degree).
- **Skill:**
  - Deep Learning / Computer Vision.
  - Object Detection / Object Segmentation / Classification.
  - Image Reconstruction / Image Translation.
  - Hand Pose Estimation.
  - Pytorch, Python, Java.

PAPER

- **Siekny Hor**, Ehwa Yang, Jae-Hun Kim, "S-XR2CT: CT Reconstruction from Single X-Ray Image using GAN-based Approach ", KICS Winter Conference, 2025.
- 차준욱,김준수,Thea Chum,Boboev Muhammadjon,Dagnachew Tessema,Elkhan Ismayilzada,Md Khalequzzaman Sayem,Mubarrat Chowdhury,**Siekny Hor**,백승렬, "실시간 사람 탐지를 위한 효율적인 영상 특징 추출 및 슬라이싱을 통한 작은 사람에 대한 탐지 성능 개선", 제 36 회 영상처리 및 이해에 관한 워크샵, 2024.
- Boboev Muhammadjon, **Siekny Hor**, Eunseo Kim, Truong Nhat Nguyen Bao, Seungryul Baek, "Multispectral Pedestrian Detection: A Literature Review", Korean Artificial Intelligence Society & Naver Autumn Joint Conference, 2022.

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sieknyhor@gmail.com | 010-7916-9822

SELF-INTRODUCTION

My name is Siekny Hor, and I am from Cambodia. I am passionate about applying artificial intelligence (AI) and software development to solve real-world problems, particularly in the field of computer vision. I hold a Master's degree in Artificial Intelligence from the Ulsan National Institute of Science and Technology (UNIST), where I focused on object detection and 3D hand pose estimation. I also earned a Bachelor's degree in Computer Science, with an emphasis on software engineering.

From 2020 to 2021, I worked as an IT Instructor at the Korea Software HRD Center in Cambodia. This role gave me the opportunity to share my knowledge with the younger generation while also allowing me to continuously learn and adapt to new technologies. I was responsible for teaching Java programming, SQL database management, and React Native mobile app development. Additionally, I updated course materials to reflect the latest trends in technology and designed curriculums that helped students build practical technical skills.

After completing my Master's degree, I joined Samsung Medical Center (삼성서울병원) in Seoul as a researcher. In this role, I developed deep learning models to reconstruct CT scans from X-ray images. The motivation behind this work is rooted in the advantages of CT scans, which provide detailed 3D imaging that can resolve overlapping tissue structures seen in 2D images. However, CT scans are expensive and require significant infrastructure, making them less accessible in underserved or resource-limited regions. In contrast, X-rays are more affordable and widely available but offer only limited 2D anatomical information, which can hinder accurate diagnosis. To address this, we proposed a method to reconstruct 3D CT volumes from a single orthogonal X-ray image. My work focused on improving the accuracy of medical imaging using AI, particularly through conditional GANs and image-to-image translation techniques. This experience deepened my understanding of both research and real-world application in the healthcare domain.

Throughout my academic and research journey, I have worked on a variety of computer vision projects, including human detection, 3D pose estimation, image classification, segmentation, translation, and restoration. I enjoy both the research and development aspects of AI and take pride in creating solutions that address practical challenges. My teaching experience also strengthened my communication skills and my ability to explain complex technical concepts clearly to others.

I am known for being friendly, approachable, and able to build strong rapport with others. I take pride in being a hardworking individual with a strong work ethic, always putting in my best effort to complete tasks efficiently and on time.

I am excited about the opportunity to work in an innovative and fast-paced environment where I can contribute meaningfully while continuing to grow as a professional.

Looking ahead, I aspire to become a research and development specialist who can integrate AI technologies, computer vision, and software development to build impactful, real-world products and services.