



Jihyun Lee

A I R e s e a r c h E n g i n e e r

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<https://github.com/easy-note>
<https://easy-note.github.io/>

EDUCATION

Master of Data Science & Artificial Intelligence
Sogang University | 2021.09 -

Bachelor of Convergence Security Engineering
Sungshin Woman University | 2017.02 - 2021.02

SKILLS

• Programming Language

- Python
- C
- SQL

• ML Framework

- TensorFlow
- Pytorch
- Pytorch lightning

• Tools

- Visual Studio / Visual Studio code
- Pycharm
- Jupyter Notebook
- Dev C++
- MYSQL Workbench
- Android Studio
- Wireshark
- VMWare Workstation
- Virtual box

PROFILE

I am an AI research engineer who is studying steadily. I am currently working in the field of Medical Computer Vision and like to study Computer Vision. Recently, I have been interested in deep learning based Recommender System and Graph Neural Networks. I am majoring in Data Science & Artificial Intelligence of Sogang University Graduate School of Information & Technology.

PROFESSIONAL EXPERIENCE

HUTOM

AI Research Engineer | 2020.11 - 2022.06

1. Research

- **Optimal Surgery Computer Vision Recognition** | 2021.06 -
 - Instrument pose estimation
- **Non-Relevant Segment Recognition via Hard Example Mining** | 2021.03 - 2022.06
 - Submitted in MICCAI Workshop 2022
 - Non-Relevant Segment Recognition via Hard Example Mining (HEM) is performed under sparsely distributed events for real-time video editing. We propose two HEM methods (online/offline HEM), and a new metric (OR, CR) due to the characteristics of FP fatal NRS Recognition. We used the MobileNetV3, MobileViT, and ResNet18 models in various experimental details.
- **Learning Methods for Text-to-Image Retrieval** | 2022.03 - 2022.05
 - Aliproducts Challenge of CVPR 2022 (14/28 (625))
 - The goal of the Aliproducts Challenge is to retrieve images from a large-scaled product dataset through the textual captions. We approach in two main ways: First, we focus on handling data to refine the entire dataset. Second, we pursue the improved representation on each unimodal encoders. Proposed methods is mainly based on ALBEF model.
 - Mainly responsible for data refinement strategy and model experiments parts.

2. Product Development

- **Automatically analyzing the surgical video & edit unnecessary parts** | 2021.03 -
 - ViHUB
 - Model development and model porting of products. Based on lightweight (MobileNet, SqueezeNet, VGGNet) and ResNet family considering on-premise environment in operating room.
- **Building a Back-end Database for model training** | 2020.11 - 2021.03
 - Raw annotation data preprocessing for model training. Raw annotation data were preprocessed in one standardized json form. Also the outlier data was detected.
 - RDBMS database design and deployment. MariaDB was used, and entire annotation data were loaded using SQL and MySQL Workbench.

AWARDS

- **2020**
 - **Excellence Prize** of PBL & Capstone Report
- **2019**
 - **Top Prize** of Sungshin study group (Digital Forensic)
 - **Top Prize** of KUCIS SNS Content Reporter (融保工)
 - **Encouragement Prize** of Sungshin study group (融保工)
 - **Encouragement Prize** of Hackathon (Convergence Security Engineering)
- **2018**
 - **Top Prize** of Sungshin study group (融保工)
 - **Encouragement Prize** of Sungshin study group (融保工)

CERTIFICATED

- VR Instructor Training Basic Course 2nd Phase (Incheon National University, 2020)
- Programming Big Data Analytics (Sungshin Women's University, 2020)
- Drone & Raspberry Pi Programming (Sungshin Women's University, 2020)
- Digital Forensics Education (Sungshin Women's University, 2017)
- Programming Foundation with Python (Sungshin Women's University, 2017)

Ensign InfoSecurity Inc.

KR Cyber Threat Intelligence Team Intern | 2020.07 – 2020.09

- **Cyber Threat Analysis in Korea**
 - Development of an automation process model for collecting and analyzing threat information in Korea. A web-crawler was developed for collecting Korean threat information and PyQT-based web-crawler GUI was used. Target is Korea's harmful site and Twitter.
 - Malicious Analysis Study and writing daily reports.

PROJECT

Paper

- **Cooperative Friendly Jamming Techniques for Drone-Based Mobile Secure Zone** | 2020.09 – 2022.02
 - Published in MDPI (2022)
 - IoT mobility security research using friendly jamming
 - Building a network security model for mobility IoT using friendly jamming. Mainly responsible for field test (pilot test) and simulation test.
 - In the file test, implemented of raspberry pi-based security zone, P2P communication model in the field test. Also, socket programming: sending and receiving data packets using UDP broadcast was performed. In the simulation test, conducted a proposed model simulation test based on octave and a SNR conceptual study.
 - Link : <https://www.mdpi.com/1424-8220/22/3/865>

Capstone Design

- **A Study on the Utilization of Airport Kiosk for Public Safety Improvement** | 2019.09 – 2019.12
 - Mainly responsible for facial Recognition algorithm based on open-cv using raspberry pi.
 - Implement airport kiosk using raspberry pi.
 - Establishment of functions for improving public safety, such as finding missing children and lost items, measuring body temperature, and guiding evacuation routes in case of disaster.

EXTRACURRICULAR ACTIVITIES

Clubs

- 融保工 (융보공)
 - Management team (Planning Department)
 - Linux Security Practice (SQL Injection, DNS Spoofing, WAF Installation and Detection).
 - Mentor activity of C language study.
 - Planned convergence security scenarios and proceeded by analyzing the latest security trends.
 - Link : <https://sites.google.com/view/protectivemaster>

Study

- **Deep Learning Study**
 - Deep Learning Study of Sungshin Women's University
 - Assistant Professor : Saerom Park
 - <https://scholar.google.co.kr/citations?user=AqiXxNkAAAAI&hl=ko>
 - Presenting a deep learning paper every week, and exchange opinions. Mainly review papers related to Computer Vision and Graph Neural Networks, and also review papers related to NLP and security.
- **GNN Study**
 - Recommender system study
 - Assistant Professor : Saerom Park
 - <https://scholar.google.co.kr/citations?user=AqiXxNkAAAAI&hl=ko>