

Suro Lee

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EDUCATION

Columbia University

Master of Science – Computer Science, Machine Learning Track

- GPA: 4.08

Dec 2023 (expected)

New York, US

Korea Advanced Institute of Science and Technology (KAIST)

Bachelor of Science – Computer Science, Specialization in Artificial Intelligence

Minor in Electrical Engineering

Dec 2021

Daejeon, Korea

RELEVANT COURSEWORK

Math: Real Analysis, Linear Algebra, Probability and Statistics, Differential Equations

Machine Learning: Computational Learning Theory, Statistical Learning Theory, Machine Learning, Artificial Intelligence, Computer Vision, AI Based Software Engineering, Natural Language Processing

EXPERIENCE

Columbia University

Teaching Assistant (Spring 2023, Fall 2022)

Sep 2022 – May 2023

New York, US

- Competitive Programming: Supported 220+ undergraduate/graduate students prepare for ICPC contests by holding weekly office hours that cover solutions to challenging problems
- Computing for Business Research: Supported 70+ graduate students in Python, MATLAB, C, Bash, R, MySQL, TensorFlow, and Git by holding weekly office hours

Samsung Research

Software Engineer, Visual Perception Team

Jan 2022 – Jul 2022

Seoul, Korea

AI Recipe Navigation

- Led the full-stack development of an interactive recipe navigation web demo using Node.js, Flask, Svelte, Bootstrap, and Mosquitto
- Deployed three state-of-the-art AI models from Samsung Research
- Action recognition and speech recognition models were used to query the main server, which would return the corresponding recipe step. Then, using a video localization model (Graph2Vid), these steps were mapped to a segment in a YouTube video, and the corresponding segment would automatically start playing on the web client.

AI Cooktop

- Developed an ingredient detection demo that uses a projector and a homography matrix to display detection results on a kitchen table and suggest appropriate recipes based on the ingredients

KAIST INA Lab

Undergraduate Researcher

Feb 2021 – Sep 2021

Daejeon, Korea

Project: Content-Aware and Task-Aware Variable Rate Image Compression using Compressive Autoencoders

- Exploited content-specific redundancies by training a compressive autoencoder with a dataset consisting of only one type of content such as faces (i.e., CelebA Dataset), achieving up to 2% improvement in terms of PSNR
- Optimized the compressive autoencoder for a task-specific loss instead of a perceptual loss, which outperformed JPEG in image classification up to 11% in terms of accuracy for low resolution images

Koh Young Technology

Research Intern, Machine Intelligence Team

Mar 2019 – Aug 2019

Yongin, Korea

- Implemented a prototype for a distributed, real-time SMT (surface-mount technology) inspection process using Apache Kafka, Apache Spark, and Apache HBase—which was later developed into a successful full-fledged product
- Achieved up to 10x speed up from batch processing, significantly decreasing the number of defects in the solder paste printing process

SELECTED PROJECTS

Hybrid Adaptive Ant Colony System for TSP | *Metaheuristic Optimization* Sep 2020 – Dec 2020

- Sped up convergence speeds by using randomized local search at initial stages of ant colony system (ACS)
- Dynamically tuned ACS parameters throughout algorithm to encourage exploration away from local optima
- Outperformed randomized two-opt algorithm, and removed need to set experiment-specific parameters in conventional ACS

Masked Emotion Detection for COVID-19 | *Computer Vision* Sep 2020 – Nov 2020

- Led a team of four to improve emotion detection performance on masked faces by training deep learning model with synthetic masked data and existing masked datasets
- Extended Deep Emotion model, attaining improvements up to 16% on three emotion datasets

EXTRACURRICULAR ACTIVITIES

2022 ICPC North American Qualifier Feb 2023

- 4th out of 64 teams in Columbia University

2022 ICPC Columbia University Local Contest Sep 2022

- 15th out of 112 participants; solo contest

TECHNICAL SKILLS

Languages: Python, C++, C

Machine Learning: PyTorch, TensorFlow

Web Development: HTML, CSS, Svelte, Flask,
Bootstrap, Node.js

Mobile Development: Android Studio, Flutter, Unity

Distributed Systems: Apache Kafka, Apache Spark,
Apache HBase

Developer Tools: Docker, GitHub