Suro Lee
+82-10-4433-6149 • sulee1415@gmail.com

Education

KAIST (Korea Advanced Institute of Science and Technology) *2021.12*
B.S., Computer Science; Minor in Electrical Engineering; Semiminor in Artificial Intelligence
Overall GPA: 3.61/4.3 (3.57/4.0)
A.I. Semiminor GPA: 3.92/4.3 (3.80/4.0)

Research Experience

Undergraduate Researcher, KAIST INA Lab *2020.2 – 2021.9*
School of Electrical Engineering
Advisor: Dongsu Han
Project 1: Content-Aware and Task-Aware Variable Rate Image Compression using Compressive Autoencoders

We attempted to improve state of the art image compression performance by using content-aware neural networks. By using a dataset consisting of only one type of content such as faces (i.e., CelebA Dataset), the network learned to further exploit content-specific redundancies, achieving slight improvements in terms of MS-SSIM and PSNR. Task-awareness was achieved by optimizing the compressive autoencoder for a task-specific loss instead of a perceptual loss. By doing so, the network learned to optimize for best performance on a certain task such as classification. This task-aware compression network outperformed JPEG in image classification especially under low bits-per-pixel conditions.

Project 2: Joint Optimization for Image Compression (on-going)

After observing promising performance in task-aware image compression, we chose to further utilize the potential of deep neural nets for joint optimization. We built an autoencoder with one encoder and two decoders and optimized for a joint loss that consisted of a linear combination of a perceptual loss and a task loss. Currently we are working on an optimization method that finds the optimal image reconstruction when given a task performance threshold.

Research Intern at Koh Young Technology, R&D Division *2019.3 – 2019.8*
Advisor: Jaehyung Kim

Implemented a prototype for a distributed, real-time SMT (surface-mount technology) inspection process using Apache Spark's Machine Learning Library. Created and managed a distributed cluster for data streaming using Apache Kafka. Achieved 5-10x speed up from batch processing.

Awards and Grants

Samsung Research Scholarship *2021.3 – 2022.3*
Samsung Research

- Granted to outstanding students who display promising abilities in research, $10000
- Offered a junior researcher position at Samsung Research Korea

Short-term Undergraduate Research Grant *2021.3 – 2021.8*
KAIST

- Granted to undergraduate students by evaluating their research proposals, $5000

Long-term Undergraduate Research Grant *2020.3 – 2021.1*
KAIST

- Granted to undergraduate students by evaluating their research proposals, $8500

LINE Scholarship *2019.11*
LINE Corporation

- Granted to 20 students in KAIST School of Computing by heuristically evaluating their academic achievements, potential, and dedication, $4000

Skills

Machine/Deep Learning: TensorFlow, PyTorch
Natural Language Processing: Named Entity Recognition, Information Extraction, NLTK, spacy, AllenNLP
Cloud-based Technologies: Apache Kafka, Apache Spark, Apache HBase
App-Development: Android Studio, Flutter, Unity, Firebase, Node.js, MongoDB
Programming Languages: C, C++, Python, Java, JavaScript, Scala
Language Proficiency: English (Fluent), Korean (Fluent)