

KIJUNG JEON

E-mail: krait@kaist.ac.kr / Citizenship : Republic of Korea

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Republic of Korea
B.S in Electrical Engineering & Mathematical Science (Double major) *Mar. 2018 ~
GPA: 4.26/4.30 (Overall), 4.30/4.30 (EE/Math major)
(* Left for mandatory military service: Jan. 2020 ~ Aug. 2021)

Exchange program

UC Berkeley

Berkeley, CA, USA

GPA: 4.0/4.0, Period: May. 2018 ~ Aug. 2018 (Summer Session)

Confident backgrounds

EE : Information theory, Signal processing, Machine learning, Electromagnetics

Math : Statistical inference (Classical, Bayesian), Probability theory, Analysis, Numerical analysis, Optimization (+ Convex)

RESEARCH INTERESTS

1. Statistical learning theory and its applications
 - Theoretical analysis on regularization techniques of neural networks
 - Data valuation for efficient neural network training
 - Tight generalization measure for neural networks
2. High-dimensional statistics and information theory
3. Bayesian deep learning / Efficient domain-agnostic algorithms for unsupervised learning

RESEARCH EXPERIENCE

Inference and Information for Data Science (IIDS) Lab

Dec. 2021 ~

Advisor : Prof. Hye won Chung

- Efficient crowdsourcing algorithms
 - Studied spectral methods for data science via a statistical perspective.
 - Studied efficient crowdsourcing algorithms for multi-class labeling.
- Mix-up training based on data valuation scores
 - Studied various data valuation scores for efficient training of neural networks.
 - Implemented mix-up based on data-valuation scores and verified the characteristics of efficient mixup samples during training.

Algorithmic Intelligence Laboratory (ALIN-LAB)

Dec. 2022 ~

Advisor : Prof. Jinwoo Shin

- Information theory views of contrastive losses
 - Studied variational bounds of mutual information, Renyi-mutual information
 - Compared mutual information estimation performance via neural network under correlated gaussian distribution

- Analysis of mix-up in contrastive learning and its application on domain-agnostic environment
 - Proved mix-up contrastive learning with InfoNCE loss contributes to regularization of input directional derivatives.
 - Proposed domain-agnostic contrastive learning algorithm based on discrete patch mix-up exploiting transformer architecture.

Statistical Inference and Machine Learning (SIML) Lab

Jun. 2023 ~

Advisor : Prof. Juho Lee

- Bayesian deep learning
 - Studied the theoretical framework of SGMCMC algorithms and their variations for an efficient sampling.

IN-CLASS PROJECTS

Visualization of electric fields via PINNs (Physics-Informed Neural Networks)

- Visualized the two-dimensional electric field by solving differential form of Gauss's law via PINNs.
- Proposed a efficient method to stabilize training of PINNs based on data valuation scores.

An efficient clustering algorithm for mixtures of high-dimensional iso-tropic gaussians

- Clustered mixtures of high-dimensional iso-tropic gaussians using PCA followed by GM algorithm, verifying that iso-tropic gaussian is invariant under PCA.

ACTIVITIES & WORK EXPERIENCE

Freshman mentoring (Calculus 1) at KAIST

Mar. 2019 ~ Jun. 2019

Asturias (Classic guitar club) at KAIST

Mar. 2018 ~ Nov. 2019

Republic of Korea Army (ROK)

Jan. 2020 ~ Aug. 2021

- Work place : 102nd Signal Brigade - ROK II Corps
- Worked as military driver & signalman (position : Sergeant)

SKILLS

Programming Languages and Frameworks

Python (+ Pytorch), Matlab, R, C, Latex

Languages

Korean : Native, English : Fluent

AWARDS AND SCHOLARSHIPS

KAIST Presidential award, KAIST

Feb. 2018

Awarded to students with high entrance scores

KAIST Presidential Fellowship (KPF), KAIST

Feb. 2018 ~

National Excellence Scholarship for Science & Engineering, KOSAF

Feb. 2018 ~

Dean's List, School of Freshman, KAIST

Fall 2018

Dean's List, College of Engineering, KAIST

Spring 2019, Fall 2020, 2021, 2022

Department Honors Scholarship, KAIST

Fall 2019, Spring 2022