Changhwa Park

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Education

Seoul National University — Seoul, KR
M.S. in Electrical and Computer Engineering, GPA: 4.20/4.30 — Mar. 2019 – Feb. 2021
Advisor: Prof. Sungroh Yoon

Seoul National University — Seoul, KR
B.S. in Electrical and Computer Engineering, GPA: 3.93/4.30 (total), 4.08/4.30 (major) — Mar. 2012 – Feb. 2019

Cockrell School of Engineering, UT Austin — Austin, US
Exchange Student Program, GPA: 3.96/4.00 — Aug. 2017 – May 2018

Seoul Science High School — Seoul, KR
Specialized high school for students talented in math and science, GPA: 4.01/4.30 — Mar. 2009 – Feb. 2012

Employment

42dot — Seoul, KR
Machine Learning Engineer — Sep. 2022 – Present

Hyundai Motor Group — Seoul, KR
AI Research Engineer at AIRS Company — Mar. 2021 – Sep. 2022

- Class imbalance research
- Proposed a mutual learning framework that generates high-quality representations in long-tailed settings and established a new state-of-the-art record on several long-tailed benchmark datasets.
- AutoML website, full stack development
- Developed both client-side and server-side of the website for AutoML service from the ground.
- Wheel alignment for a smart factory
- Developed machine learning algorithm using tabular data to automate wheel alignment for a smart factory.

Publications and Preprints

[1] **C. Park**, J. Yim, and E. Jun, "Mutual learning for long-tailed recognition", Accepted as a conference paper at WACV 2023.

[2] M. Kim, **C. Park**, J. Yim, and E. Jun, "Transfer learning for extreme domain gap", Preprint, 2022.

[3] K. Choi, J. Yi, **C. Park**, and S. Yoon, "Deep learning for anomaly detection in time-series data: Review, analysis, and guidelines", *IEEE Access*, 2021.

[4] S. Lee, **C. Park**, H. Lee, J. Yi, J. Lee, and S. Yoon, "Removing undesirable feature contributions using out-of-distribution data", in *ICLR*, 2021.

[5] **C. Park**, J. Lee, J. Yoo, M. Hur, and S. Yoon, "Joint Contrastive Learning for Unsupervised Domain Adaptation", arXiv preprint arXiv:2006.10297, 2020.

[6] J. Yoo*, **C. Park***, Y. Hong, and S. Yoon, "Learning Condensed and Aligned Features for Unsupervised Domain Adaptation Using Label Propagation", arXiv preprint arXiv:1903.04860, 2019.

Research Experience

Seoul National University Seoul, KR
Undergraduate Research Intern at Data Science & AI Lab July 2018 – Feb. 2019

- Domain adaptation through label propagation (Advisor: Prof. Sungroh Yoon)
- To learn domain invariant and class-wise discriminative features, applied label propagation method and enforced cycle consistency. Proved theoretical rationale and achieved competitive performance.

Cockrell School of Engineering, UT Austin Austin, US
Undergraduate Research Intern at Wireless Networking and Communications Group Jan. 2018 – May 2018

- URLLC performance analysis (Advisor: Prof. Jeff Andrews)
- Studied existing URLLC schemes used in industrial and vehicular networks and incorporated these schemes into a probabilistic framework that enables performance analysis.

Teaching

- **Teaching Assistant** at Seoul National University Sept. 2019 – June 2020
  Theory and Lab of IoT, AI, and Big Data (M2177.004900)
- **Teaching Assistant** at Seoul National University Mar. 2014 – June 2014
  Introduction to Electronic Circuits and Laboratory (430.213A)

Skills

- **Deep Learning:** PyTorch, TensorFlow
- **Programming:** Python, Matlab, JAVA, C++
- **Front-end:** TypeScript, React, Next.js, MUI
- **Back-end:** FastAPI, GraphQL, PostgreSQL

Languages

- **English:** Proficient, OPIc score: Advanced Low
- **Korean:** Native

Projects

- Renal Progression Risk Prediction, Seoul National University Hospital May 2020 – Feb. 2021
  - Analyzed machine learning approaches for the relationship between dyslipidemia and renal outcomes.
- AI Consortium for Transfer Learning Research, Hyundai Motor Group Apr. 2019 – Feb. 2021
  - Built domain adaptation model that utilizes contrastive learning to enhance feature discriminability.
- Domain-Adversarial Training of Neural Networks Jan. 2020
  - Implemented Domain-Adversarial Training of Neural Networks (Ganin et al., 2016) with TensorFlow 2.0.
- Exercise Capacity Prediction using Body Composition Data, Hilaris Feb. 2019 – Oct. 2019
  - Built deep learning model to predict the exercise capacity of each person using supervised learning.

Scholarships and Awards

- Third place, Hyundai Motor Group Programming Festival 2021
- OIA Outgoing Exchange Student Scholarship 2017 – 2018
- Full Scholarship granted by Sinyang Cultural Foundation 2017
- Academic Incentive from Electrical and Computer Engineering Scholarship Foundation 2014, 2016 – 2017
- Eminence Scholarship granted by Seoul National University 2012 – 2014, 2016

Professional Services

- NeurIPS conference reviewer 2020, 2021, 2022
- ICLR conference reviewer 2020, 2022
- ICML conference reviewer 2022