Jaehyun Nam

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OVERVIEW

My research focuses on designing algorithms for under-explored domains, i.e., deep tabular learning, molecular representation learning. To this end, I focus on developing (i) self-supervised and unsupervised learning framework for tabular data, and (ii) machine learning for drug discovery. In addition, I have a broad interest in privacy-preserving machine learning by utilizing cryptographic primitives (e.g., secure multiparty computation).

Keywords: Deep tabular learning, Machine learning for drug discovery, Privacy-preserving machine learning

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

- M.S. in Artificial Intelligence — Mar 2022 – Present
  - Advisor: Prof. Jinwoo Shin

Seoul National University (SNU), Seoul, Republic of Korea

- B.S. in Industrial Engineering and Mathematical Sciences (minor) — Mar 2016 – Feb 2022
  - Advisor: Prof. Jaewook Lee

PUBLICATIONS

CONFERENCES

[1] STUNT: Few-shot Tabular Learning with Self-generated Tasks from Unlabeled Tables
Jaehyun Nam, Jihoon Tack, Kyungmin Lee, Hankook Lee, Jinwoo Shin
ICLR, **Spotlight presentation**, 2023
NeurIPS Workshop on Table Representation Learning (NeurIPSW-TRL), 2022
Samsung Humantech Paper Awards, Bronze Prize, 2023

INVITED TALKS

- Privacy-preserving Median Selection and Secure Aggregation in Federated Learning — Oct 2021
  2021 Korean Mathematical Society Fall Meeting, Virtual

WORK EXPERIENCES

- **SK Hynix** — Dec 2020 – Feb 2021
  Undergraduate Intern, Collaborate with Dr. Songho Baek's AI Solution team
  Project: Return Latency Prediction of OHT via STGCN
  Keywords: Spatial-Temporal Graph Convolution Network, Overhead Hoist Transport
- **Industrial & Mathematical Data Analytics Research Center (IMDARC)** — Sep 2020 – Dec 2020
  Undergraduate Intern, Collaborate with Prof. Woong Kook and Simplatform.Co.,Ltd
  Project: ECG analysis through Multi-Modal data, KT POS data analysis, Electricy energy analysis using data from TIDE Co., Ltd, Production performance analysis
  Keywords: Explainable AI, AI Solution

RESEARCH EXPERIENCES

- **CryptoLab**, Department of Mathematcial Sciences, SNU — Mar 2021 – Feb 2022
  Undergraduate Research Intern, Advised by Prof. Junghee Cheon
  Project: Privacy-preserving Median selection and Secure Aggregation in Federated Learning
  Keywords: Homomorphic Encryption, Secure Multi-party Computation, Privacy-preserving Machine Learning
- **ALIN-LAB**, Graduate School of AI, KAIST — Jun 2021 – Feb 2022
  Undergraduate Research Intern, Advised by Prof. Jinwoo Shin
  Project: Novel loss function design for faster INR convergence
  Keywords: Implicit Neural Representations
- **DSAIL**, Department of Industrial and Systems Engineering, KAIST — Dec 2020 – Jun 2021
  Undergraduate Research Intern, Advised by Prof. Chanyoung Park
  Project: Loan product recommender system using graph embedding techniques, Collaborate with Hana Bank
  Keywords: Recommeder Systems, Graph Neural Networks
- **SNUDM**, Department of Industrial Engineering, SNU — Jan 2020 – Feb 2020
  Undergraduate Research Intern, Advised by Prof. Sungzoon Cho
  Project: Online Contents Popularity Analysis with New York Times data
  Keywords: Natural Language Processing, Sentiment Analysis

HONORS & AWARDS

- Bronze Prize, Samsung Humantech Paper Awards — Feb 2023
  Samsung Electronics
  ”STUNT: Few-shot Tabular Learning with Self-generated Tasks from Unlabeled Tables”
  $5000
- Special Award, National Cryptography Contest — Oct 2021
  National Security Research Institute
  ”Privacy-preserving Median Selection and Secure Aggregation in Federated Learning”
  $1000
- Hanseong SonJaehan Scholarship for Gifted Students — 2014 – 2016
  Hanseong SonJaehan Scholarship Foundation
  $6000

TEACHING

- Peer Tutor, College Writing 2: Writing in Science & Technology, SNU — Fall 2020 – Fall 2021
- Peer Tutor, Caluculus 1, SNU — Spring 2020

LANGUAGES

- Korean: Native language.
- English: Fluent

SKILLS

- Python, PyTorch, LaTeX: Proficient
- R, Mosel, TensorFlow: Working Knowledge

[*CV compiled on 2023-02-26*]