Juhyun 'Simon' Park

https://parksimon0808.github.io/ juhyunp at princeton.edu

Education

Princeton University *Princeton, NJ, USA*
M.S.E. in Computer Science *2023 - Current*
A.B. in Mathematics, Graduated Cum Laude *2017 - 2023*

Interests

Machine Learning Theory, Natural Language Processing, Large Language Models

Research Experience

Machine Learning Theory

1. Effect of L2 Regularization on ReLU Networks Spring 2023
Advisor: Boris Hanin
- Analyzed how L2 regularization on infinite-width, 1-layer networks restricts the function space for 2-dimensional data

2. Robustness of Shapley Values for Data Valuation Spring 2022
Advisor: Sanjeev Arora
- Analyzed the robustness of Shapley values across different training settings
- Proposed a novel approach of approximating Shapley values by evaluating on simpler models with similarly expressive power

Natural Language Processing

1. Email Content Extraction Spring 2023
Advisor: Sebastian Seung
- Proposed a double fine-tuning method to train a model that can extract key information from promotional emails

2. Effectiveness of In-Context Learning Fall 2022
Advisor: Danqi Chen
- Analyzed empirically what aspects of in-context learning contribute to open-domain QA and summarization tasks

3. Joint Multi-task Language Model Spring 2022
Advisor: Karthik Narasimhan
- Proposed a variation of a joint multi-task language model for Vietnamese that outperforms the baseline model

Publication

Arora, S., **Park, S.**, Jacob, D., and Chen, D., "Introduction to Machine Learning: Lecture Notes for COS324 at Princeton University," 2022. [link]

Park, S., "Extension of Simple Algorithms to the Matroid Secretary Problem," 2022. [link]

Awards

Outstanding Student Teaching Award *May 2023*
Princeton University Department of Computer Science

Shapiro Award for Academic Excellence *Sep 2019*
Princeton University, Top 3% of Class

Teaching Experience

Natural Language Processing Undergraduate TA *Spring 2023*
Introduction to Machine Learning Undergraduate TA *Fall 2022, Spring 2023*
LaTeX Trainer Lab TA *Fall 2022, Spring 2023*
Introduction to Programming Systems Lab TA *Spring 2022, Fall 2022*
Algorithms and Data Structures Lab TA *Spring 2022, Fall 2022*
Algorithms and Data Structures Grader *Spring 2019, Fall 2021*
Computer Science: An Interdisciplinary Approach Grader *Fall 2018*

Skills

Programming Languages: Fluent in Java, Python, C / Familiar with R, SQL

Natural Languages: Native in Korean / Fluent in English, Mandarin Chinese

Relevant Coursework

Computer Science (graduate courses in **bold**)

- **Mathematical Understanding of Deep Learning**, **Understanding Large Language Models**, **Advanced Algorithm Design**, **Optimization for Machine Learning**, Introduction to Machine Learning, Natural Language Processing, Neural Networks: Theory and Applications

Mathematics

- Real/Complex Analysis, Algebra, Probability, Statistics, Stochastic Systems, Theory of Computation, Game Theory, *Analysis of Big Data*

Extracurricular Activities

Korean Augmentation to the US Army *Nov 2019 - Jun 2021*
Translated for high-ranking officers

Korean Students Association at Princeton *Feb 2019 - May 2019*
Events Director

Harvard-MIT Math Tournament *Feb 2019*
Grader

Princeton University Math Competition *Nov 2018*
Tech Team, Problem Reviewer