Kyung Min (Brian) Ko

[U.S. Permanent Resident]
Webpage | ko120@purdue.edu | LinkedIn | Github |

Education

Purdue University, West Lafayette Aug 2019 - May 2024
*Bachelor of Science in Electrical Engineering, graduated **with distinction*** GPA: **3.94/4.00**

- TA: ECE 570 Artificial Intelligence **(graduate)**, ECE 20875 Python for Data Science
- Coursework: Artificial Intelligence **(graduate)**, Statistical Machine Learning **(graduate)**, Natural Language Processing **(graduate)**

Publication

Benchmark Algorithms for Distribution Matching Under Work, 2024
*Kyung Min Ko, Jim Lim, Ziyu Gong, David Inouye. **[Paper]***

Backward Curriculum Reinforcement Learning IEEE RO-MAN **(Oral)**, 2023
*Kyung Min Ko. **[Paper] [Code]***

V-advCSE: Virtual Adversarial Contrastive Learning for Sentence Embeddings Pre-print, 2023
*Kyung Min Ko. **[Paper] [Code]***

Exploiting Code Language Models and Contrastive Learning in Binary Code Authorship Pre-print, 2023
*Kyung Min Ko, Nan Jiang, Lin Tan. **[Paper] [Code]***

Experience

Research Assistant May 2023 - Present
*Purdue University, West Lafayette, IN. **Advised by Prof.David I. Inouye***

- Conducting research on building a benchmark paper for distribution matching, focusing on critical aspects such as calibration, domain adaptation, and fairness.
- Compiling and analyzing various methods of post hoc calibration and regularization, applying these techniques to both regression and classification models to enhance model reliability and accuracy.
- Developing and implementing robust evaluation frameworks for model calibration, assessing the effectiveness of different approaches in ensuring trustworthy machine learning systems.

NSF Summer Undergraduate Research Intern [Paper & Code] May 2023 - Present
*Purdue University, West Lafayette, IN. **Advised by Prof.Lin Tan***

- Discovered the application of code language models for malware author classification
- Engineered a novel approach for function-level learning, transitioning from traditional file-level input
- Incorporated contrastive learning methodologies to address code authorship tasks, eliminating the need for labels

Human Resource Manager Nov 2021 - May 2023
Republic of Korea Army, South Korea

- Optimized the boundary protection schedule system by automating processes with programming
- Facilitated proper troop assignments by documenting the transferring process, considering current unit status
- Recognized for developing an AI object tracking system used in the guardroom, awarded by the chief of the general staff of the army

NSF Summer Undergraduate Research Intern [Code] Jun 2021 - Aug 2021
*Georgia Tech, Georgia, Atlanta. **Advised by Prof.Siva Theja Maguluri***

- Implemented REINFORCE, A2C, and REINFORCE with baseline algorithms applicable to both continuous and discontinuous action spaces
- Validated algorithms across diverse environments from Open AI gym, addressing real-world challenges
- Authored a paper on IEEE RO-MAN, introducing novel backward curriculum learning, enhancing sample efficiency via reverse order training

Projects

Guardroom Object Tracking System [Code] Jun 2022
Awarded commandment by the chief of the general staff of the army

- Developed a multi-object tracking system using Yolo-v4 and Deep Sort for automated CCTV surveillance in guardrooms
- Enhanced unit security by tracking objects entering selected regions and calculating real-time moving average distances to display object trajectories