

Byungjun Yoon

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RESEARCH INTEREST

My research interest lies in various topics in **Machine Learning, Large Language Models**, and **their practical applications**. I am particularly interested in ML/AI topics that can enhance human productivity. Currently, the large language model and its factual content generation are my main focuses.

EDUCATION

Pohang University of Science and Technology

B.S. in Computer Science

Pohang, Korea

Feb 2019 – Present

McLean High School

Virginia, USA

Sep 2015 – Jun 2018

WORK

Devsisters

Seoul, Korea

Applied Data Scientist, Software Engineer

Sep 2021 – Oct 2023, Full-time

- Led the development of a Customer ROAS Prediction System using Deep Learning for data-oriented UA marketing decisions.
- Improved the legacy MCMC-based Life Time Value Model.
- Implemented and managed a PPO-based puzzle game automation AI.
- Developed a log-based user churn prediction algorithm for Cookie Run: Kingdom.
- Developed a distributed PyTorch dataloader wrapper for Parquet datasets in a distributed data environment.
- Developed a front-end webpage with Next.js.

Naver Webtoon

Pangyo, Korea

Research Intern, W-Tech Research Team: AI Automation

Jun 2021 – Aug 2021, Internship

- Researched unsupervised clustering of Webtoon drawing styles related to deformation to provide classification of art styles for ML tasks.
- Investigated Webtoon drawing style embedding algorithms and similarity metrics based on metric learning.

Reziena

Seoul, Korea

Intern

Jun 2020 – Aug 2020, Internship

- Researched the backend and ETL pipeline for data from IoT devices, developed a Skin Type Classification Algorithm, analyzed AWS Infra security, and implemented a Firebase authentication system.

RESEARCH

DARPA AI Cyber Challenge

Team Atlanta

Lead by Taesoo Kim @GaTech

Sep 2023 – Present, ML Task Member

- Working as a team member in Team Atlanta consist of SSLab@GaTech, Hacking Lab@KAIST, ML Lab@POSTECH, Samsung Research, and others
- Researching ML pipeline of automatic CWE patch (including CWE detection, patch generation)

Enhancing retrieval-augmented generation by prompting model: A tri-model framework for factual language generation

DI Lab

Advisor: Hwanjo Yu

Sep 2023 – Present, Internship

- Researching a tri-model framework, which inserts a prompting model between a retriever model and a generator model to improve the RAG framework in a black-box frozen generator environment.

Lung Abnormalities Detection

AIMI Lab

Advisor: Wonhwa Kim

Oct 2020 – Jun 2021, Internship

- Researched lung abnormality detection in chest x-ray images using R50-FPN for localization and abnormality classification.

Undergraduate Research Participation

CV Lab

Advisor: Suha Kwak

Dec 2020 – Feb 2021, Internship

- Studied Metric Learning, Computer Vision, and CS231n.
- Reproduced related papers: [1], [2].

SKILLS

Technologies: PyTorch, PyMC, Pyro, Slurm, TensorFlow, PySpark, Git, Docker, Kubernetes, Helm, Next.js, React, Unity ML-Agent, Flask, Node.js

Languages: Python, Java, C/C++, JavaScript/TypeScript, Solidity, Rust

AWARDS & ACHIEVEMENTS

1st Place Award in the Postech Open Innovation Big Data Challenge

PROJECTS

Deep Learning (CSED538) In-class Image Classification Competition | *Github*

- Developed an image classification framework based on ViT and RandAugment
- Achieved first place in the competition

Personality Prediction AI and App Development | *GitHub*

- Created a computer vision project to classify a person's MBTI with vision models
- Deployed a web application to serve our model in a web environment.

Solar Energy Prediction System | *Github*

- Developed a multivariate time-series prediction model for predicting solar energy production
- Received the First Place Award in the Postech Open Innovation Big Data Challenge

RELEVANT COURSEWORK

Major coursework: Deep Learning (CSED538), Deep Learning NLP (CSED554), Implem. & Accel. for Machine Learning (CSED510), Software Design Methods (CSED332), Artificial Intelligence (CSED342), Data Analysis Using Tools (CSED490A), Operating Systems (CSED312), Computer Architecture (CSED311), Automata & Formal Languages (CSED341), Algorithm (CSED331), Object Oriented Programming (CSED232), Data Structure (CSED233), Discrete Math (CSED261), Digital Sys. Design (CSED273), Intro. to Computer SW Systems (CSED211), Applied Linear Algebra (MATH203),

MENTORING

POSTECH Intro. to Artificial Intelligence (AIGS101) TA

2nd POSTECH ON-LINE Hacking & Cyber Security Camp Mentor

5th POSTECH Computational Thinking Camp Mentor

ORGANIZATIONS

PLUS (POSTECH Labatory for Unix Security)

Member

Aug 2019 – Present

PDAO (POSTECH Decentralized Autonomous Organization)

Committee Member

Apr 2022 – Present