Keywoong Bae

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EDUCATION

POSTECH (Pohang University of Science and Technology)

- M.S. in Department of Industrial and Management Engineering — Sep 2023 – Present
  - Research Interest: Finance (Risk Management, Actuarial modeling)
  - Supervisor: Prof. Kwangmin Jung

Inha University

- B.S. in Department of Industrial Engineering — Mar 2019 – Aug 2023
  - GPA: 3.93 / 4.5, Major: 4.0 / 4.5
  - Research Interest: AI (Deep Generative Models, Adversarial attack)

PUBLICATIONS

WORKSHOPS

[W1] Diffusion-C: Unveiling the Generative Challenges of Diffusion Models through Corrupted Data
Keywoong Bae, Suan Lee, and Wookey Lee
NeurIPS Workshop on Diffusion models, 2023

CONFERENCES

[C4] Robustness Analysis of Diffusion Generation model Using Noises and Corruptions
Keywoong Bae, Suan Lee, and Wookey Lee
Korea Software Congress **(KSC 2022)** (Oral Presentation)

[C3] Bimodal Classification with CNN and Sequence Models
Keywoong Bae, Toshpulatov Mukhiddin, Suan Lee, and Wookey Lee
International Conference on Data Science **(ICDATA 2022)**

[C2] Robust Multimodal Classification Model Using Homogeneous Features
Keywoong Bae, Suan Lee, and Wookey Lee
Korea Computer Congress **(KCC 2022)**

[C1] Transformer Networks for Trajectory Classification
Keywoong Bae, Suan Lee, and Wookey Lee
International Conference on Big Data and Smart Computing **(BigComp 2022)**

WORK EXPERIENCE

X-Voice Lab, Incheon, Korea — Apr 2021 – Jun 2023

- Undergraduate Research Intern
  - Studied the robustness of Deep Learning, specifically the Multi-modal and Diffusion models, under different types of corruptions.
  - Supervisor: Prof. Wookey Lee

SL Solution, Seoul, Korea — Aug 2020

- Research Intern
  - Developed a responsive Web application called Corona Map using the TMAP API (REST API) during an internship.

UDMTek, Suwon, Korea — Dec 2019 – Feb 2020

- Research Intern
  - Worked as a developer on the Web Application team managing Manufacturing Execution System (MES) Data and developing report programs.

AWARDS & SCHOLARSHIPS

Best Paper Award — 2022
- Won a Silver Medal on Korea Computer Congress.
- Korean Institute of Information Scientists and Engineers (KIISE).

Hwaseong Scholarship — 2022
- Received a scholarship from Hwaseong-si.

Undergraduate Researcher Scholarship — 2022
- Received a scholarship from Inha University.

Industrial Management Engineering Scholarship — 2022
- Received a scholarship from Inha University.

PROJECTS

Deep Learning Term Project for classifying CIFAR-10
Mar 2023- Jun 2023

- *Project in Advanced Machine Learning course* [IEN-4116]
  - Developed an algorithm for classifying CIFAR-10 dataset to improve the classification accuracy. [Github].
  - Used DCGAN and Diffusion models to solve the problem (limitation of dataset) and improve the quality of images.

Computer Vision Anomaly Detection
Mar 2023- Jun 2023

- *Computer Vision Anomaly Detection Algorithm Competition by DACON*
  - Developed an algorithm to distinguish whether an object is normal or abnormal with class imbalanced dataset.
  - Used Deep Learning model **(EfficientNet)** to achieve better performances with fewer parameters.
  - Used Machine Learning Method **(Class Weighting)** to solve class imbalance.

Computer Vision Face Verification
Aug 2021

- *2021 Inha Artificial Intelligence Challenge by DACON*
  - Developed a face verification algorithm using **FaceNet** to extract embedding vectors from images effectively.
  - Used Machine Learning Method **(Class Weighting)** to solve class imbalance.

Database design for a restaurant time-saving system
Sep 2020- Dec 2020

- *Project in Database Design Course* [IEN-2201]
  - Designed and implemented a database system for a fast-food restaurant that utilizes customer scoring methods based on visit frequency to reduce waiting times.
  - Used ERwin to design database diagram and Oracle to systematize diagrams into databases.
  - Used Machine Learning Method **(Class Weighting)** to solve class imbalance.

Responsive Web Application Development
Aug 2021

- *SL Solution Internship course*
  - Developed Responsive Web application, Corona Map, based on public data. [Github].
  - Used SpringBoot as a framework, MariaDB as a DBMS, and TMAP API as a communication tool.

Effective Concert Entrance System Development
Mar 2021- Jun 2021

- *Project in Database Course* [IEN-2008]
  - Designed a database with Microsoft Access for implementing a system that minimizes the time wasted during concert entry.

MES Web Application Maintenance Project
Dec 2019- Feb 2020

- *UDMTEK Internship course*
  - Developed Manufacturing Execution System (MES) Web Application.
  - Utilized the Angular framework with TypeScript for front-end development, and the Spring framework with Java for back-end development, with PostgreSQL.

[*CV compiled on 2024-03-21 for Acme Corporation*]