

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

Inha University

- B.S. in Department of Industrial Engineering

Mar 2019 – Aug 2023

PUBLICATIONS

WORKSHOPS

- [W1] Diffusion-C: Unveiling the Generative Challenges of Diffusion Models through Corrupted Data [arXiv]

K.Bae, S.Lee, and W.K.Lee

NeurIPS Workshop on Diffusion models, 2023

CONFERENCES

- [C4] Robustness Analysis of Diffusion Generation model Using Noises and Corruptions

K.Bae, S.Lee, and W.K.Lee

Korea Software Congress (KSC 2022) - Oral session

- [C3] Bimodal Classification with CNN and Sequence Models

K.Bae, T.Mukhiddin, S.Lee, and W.K.Lee

International Conference on Data Science (ICDATA 2022)

- [C2] Robust Multimodal Classification Model Using Homogeneous Features

K.Bae, S.Lee, and W.K.Lee

Korea Computer Congress (KCC 2022) - Best presentation

- [C1] Transformer Networks for Trajectory Classification

K.Bae, S.Lee, and W.K.Lee

International Conference on Big Data and Smart Computing (IEEE BigComp 2022)

WORK

EXPERIENCE

AIRM Lab, Pohang, Korea

Sep 2023 – Present

- Graduate Researcher
 - Research Interest: **Finance** (Risk Management, Actuarial modeling)
 - Supervisor: [Prof. Kwangmin Jung](#)

Informatics Lab, Incheon, Korea

Apr 2021 – Jun 2023

- Undergraduate Research Intern
 - Research Interest: **AI** (Diffusion Generative Models, Adversarial attack)
 - Studied the robustness of Deep Learning, specifically the Multi-modal and Diffusion models, under different types of corruptions.
 - Supervisor: [Prof. WooKey Lee](#)

SL Solution Co. Ltd., Seoul, Korea

Aug 2020

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

UDMTek Co. Ltd., 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 Presentation Award

2022

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

Hwaseong Scholarship

2022

- Received a scholarship (1M won) from Hwaseong-si.

Undergraduate Researcher Scholarship

2022

- Received a scholarship (1.5M won) from Inha University.

Industrial Management Engineering Scholarship

2022-1, 2022-2

- Received a scholarship (1M won) 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 DAICON
 - 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 DAICON
 - 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.

SKILLS

Language.

- Korean (Native), English (Advanced)

Programming.

- Python (main), R, Java, C++
- PyTorch, Tensorflow, Keras.

Miscellaneous.

- LaTeX (Overleaf/Markdown), Git, GPU SetUp (Windows RTX3090), WBS (Trello).

[CV compiled on 2024-03-28 for Acme Corporation]