

# Keywoong Bae

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## EDUCATION

### POSTECH (Pohang University of Science and Technology)

- M.S. in Department of Industrial and Management Engineering  
• Research Interest: Insurance, Risk management (Cyber risk, Natural Catastrophes)  
• Supervisor: [Prof. Kwangmin Jung](#)

Sep 2023 – Present

### Inha University

- B.S. in Department of Industrial Engineering  
• GPA: 3.93 / 4.50, Major: 4.00 / 4.50

Mar 2019 – Aug 2023

## 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

### VOICE-AI, 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 2023-12-16 for Acme Corporation]