



Jaejun Choe

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RESEARCH INTERESTS

Defect Detection, Quality Engineering, Smart Factory

EDUCATION

Kumoh National Institute of Technology (KIT), College of Engineering

Covergence Major, Major of Smart Factory

Gumi, Republic of Korea

Aug.2023 - Present

Kumoh National Institute of Technology (KIT), College of Engineering

B.S., Department of Industrial Engineering

Gumi, Republic of Korea

Mar.2019 - Present

RESEARCH EXPREIENCE

IDS(Intelligent Data Science) Laboratory

Undergraduate Student

Gumi, Republic of Korea

Mar.2024 - Present

- Research on Emotion Analysis using Unimodal and Multimodal Learning, Semiconductor Defect Classification using AI.
- Analyzed datasets and reviewed papers.

Kumoh National Institute of Technology Industry-academic Cooperation Foundation (Prof. Young-sil Lee)

Undergraduate Student

Gumi, Republic of Korea

Apr.2023 - Feb.2024

- Research on Semiconductor Defect Classification using AI, Thermal Management Systems and Materials for Lithium-ion Batteries.
- Assisted professor and reviewed papers.

PRESENTATIONS

Poster

데이터 기반의 에너지 관리 서비스 아이디어 도출: 구미국가산업단지의 데이터를 활용한 사례연구

2024 Spring Joint Conference of KORMS and KIIE

Salakhov, T., Jeon, M., Choe, J., Kim, M.*

* = Corresponding author

PROJECT EXPERIENCE

Prediction of Mixed Defect Types in Semiconductors Using Vision Transformer and Similarity-Based Methods

Individual Project

Gumi, Republic of Korea

Mar.2024 - May.2024

- Capstone design under the supervision of Prof. Young-Sil Lee at Kumoh National Institute of Technology, 1st Semester 2024
- The goal is to predict dual defect types in data using only single defect data.
- Two models based on Vision Transformers and KNN algorithms were designed, using Euclidean and Gaussian distance calculation methods for comparative analysis.
- Prediction of dual defect types involving 'Edge_Loc' showed higher accuracy than previous studies using CNN, but overall performance was not satisfactory.

EG(Eco Gumi)-Service: Integrated Platform for Energy Efficiency and Sustainable Energy Use

Team Member

Gumi, Republic of Korea

Sep.2023 - Dec.2023

- Developed a service idea for the 2023 Gumi Industrial Complex Energy Self-Sufficiency Datathon.
- Analyzing the correlations in hourly usage data to identify past times with high correlation to past power usage and conducting time series clustering on the daily usage patterns of power consuming companies.

- Utilizing various algorithmic models such as Linear Regression, LSTM, and Ensemble Methods (Voting, Stacking, etc.) to derive R-squared and MAE.
- Proposing features for visualizing energy usage and policy notification services, and creating a Service Blueprint and user behavior simulation map to refine the service ideas.

Salary prediction for KBO players eligible for FA (Free Agent) in 2024

Gumi, Republic of Korea

Team Member & Presenter

May.2023 - Jun.2023

- Term project conducted in the Machine Learning Class at Kumoh National Institute of Technology, 1st Semester 2023
- Collected performance metrics for KBO players who signed FA contracts from 2019 to 2023.
- Analyzed the correlation between performance metrics and salaries for pitchers and batters.
- Created a model using RandomForestRegressor with performance metrics that had a correlation of 0.5 or higher.

Proposing new quality evaluation metrics and improvement plans to address issues in the Metaverse

Gumi, Republic of Korea

Team Member

May.2023 - Jun.2023

- Term project conducted in the Statistical Quality Control Class at Kumoh National Institute of Technology, 1st Semester 2023.
- Investigating the characteristics of existing Metaverse QoE(Quality of Experience) evaluation factors.
- Identifying issues with existing evaluation metrics and recent Metaverse issues.
- Proposed the addition of evaluation metrics for security and copyright protection, and the need for government-level legal revisions related to Metaverse copyright.

House of Quality (HoQ) creation and improvement proposal for LG C2 OLED TV

Gumi, Republic of Korea

Team Member

Mar.2023

- Term project conducted in the Statistical Quality Control Class at Kumoh National Institute of Technology, 1st Semester 2023
- Using surveys and Rtings(a technical review site) to derive CAs(Customer Attributes) and ECs(Engineering Characteristics).
- Created a HoQ and compared it with Samsung QN90B QLED and TCL Class 5-Series QLED.
- Proposed improvements to enhance sound quality by increasing power consumption while reducing costs.

Others

A Policy Idea For University Development

- Proposed the establishment of an interdisciplinary studies department, a course evaluation feedback system, and alumni visit programs to enhance competitiveness, innovative education, and university brand.

Proposed elder care centers in Seoul and identified optimal locations using AI.

- Proposed repurposing public kindergartens into 'Elderly Care Centers' to optimize their locations, utilizing data analysis and clustering techniques to identify areas with the highest demand

AWARDS & HONORS

AWARDS

2023	Grand Prize , Gumi Industrial Complex Energy Self-Sufficiency Datathon (Service Sector)	KEPCO
2023	Excellence Prize , A Policy Idea Contest For University Development, Kumoh National Institute of Technology	KIT

HONORS

2024	Semester High Honors* , Awarded to students of the Smart Factory Convergence major with high achievements throughout the semester.	KIT
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2024	Internal Scholarship (K-WEGO) , High mileage earners for KIT Talent Certification among activity qualifiers.	KIT
2023	Internal Scholarship (K-WEGO) , High mileage earners for KIT Talent Certification among activity qualifiers.	KIT

* = Confirmed but not yet received.

Others

DESIGN PATENT

- Cho, S., CHUNG, M., JEON, M., **CHOE, J.**, JEONG, Y., CHOI, J., "쇼핑카트", Korean Intellectual Property Office, KR-Registration No. 3012568290000, April, 2024

LICENSE AND CERTIFICATE

- 2024.07 6 Sigma Green & Black Belt
- 2024.06 ADsP
- 2024.02 AI-900 Microsoft Azure AI Fundamentals
- 2024.08 TRIZ Level 1,2