Kihoon Moon

Jeonju, Republic of Korea mnmn0825@naver.com +82-10-6642-3656 Portfolio

Education

Jeonbuk National University — *Jeonju, Korea*
BS Candidate in Software Engineering (4th Year) — *Mar. 2020 – Present*
Undergraduate Researcher, Adaptive AI Lab

- GPA: 3.8 / 4.5
- Advisor: Prof. Jaehyuk Cho
- Thesis: (Proposed Research Area) Explainable AI (XAI) for Enhancing Clinical Applicability of AI in Healthcare (e.g., Personalized Blood Glucose Prediction, Medical Image Analysis)

Research Experiences

Undergraduate Researcher — *Jeonju, Korea*
Adaptive AI Lab, Department of Software Engineering, Jeonbuk National University — *Approx. Mar. 2024 – Present*

- As first author, led problem finding, conceptualization, methodology design, implementation, and manuscript drafting for personalized blood glucose prediction in Type 1 Diabetes.
- Utilized the OhioT1DM 2018 dataset, comprising CGM data, insulin dosages, meal information, and physiological sensor data from 6 T1D patients over 8 weeks.
- Proposed and implemented BiT-MAML, a model integrating Bi-LSTM, Transformer, and MAML, to enhance prediction accuracy by enabling rapid personalization on small patient datasets and adapting to changing patient states.
- Investigated methods for enhancing story point data prediction in software engineering using TF-IDF and SBERT feature combinations.

Publications

Personalized Blood Glucose Prediction in Type 1 Diabetes Using Meta-Learning with Bidirectional Long Short Term Memory-Transformer Hybrid Model — *Submitted Mar. 2025*
Decision in Process
Scientific Reports (SCIE)
Kihoon Moon (1st Author), Jaehong Kim, Seohyun Yoo, Jaehyuk Cho

Improving Story Point Data Prediction Performance using Combined TF-IDF and SBERT Features — *To be Submitted May 14, 2025*
Journal of the Korean Institute of Information Technology (KIIT) (Domestic)
Kihoon Moon (1st Author), et al.

Patents

Personalized Blood Glucose Prediction System and Method Using Meta-Learning and Bidirectional LSTM-Transformer Hybrid Model — *Disclosure to Jeonbuk National University Industry-Academic Cooperation Foundation*
Status: Preparing for Application
Inventors: **Kihoon Moon**, Jaehong Kim, Seohyun Yoo, Jaehyuk Cho

- Technology Overview: A system and method for predicting personalized blood glucose levels in Type 1 Diabetes patients. It utilizes a hybrid model combining meta-learning for rapid personalization with Bi-LSTM and Transformer for capturing complex glucose dynamics from CGM data, aiming to overcome limitations of existing models in accuracy and adaptability, especially for longer prediction horizons and new patients.

Conferences

Personalized Blood Glucose Prediction for Type 1 Diabetes: Integrating Adaptive Deep Learning and Meta Learning Techniques *Hokkaido, Japan*
July 2024
Oral Presentation at the *2024 International Workshop on Mobile Computing and Applications (IWMCA)*
Hosted by the Korean Institute of Communications and Information Sciences (KICS)
Presenter: **Kihoon Moon**

Awards and Honors

Entrepreneurship Award, Grand Prize *Jan. 24, 2025*
Silicon Valley Innovation Program, San Jose State University

- Team: ChronosHealth (Kihoon Moon, Sol Lee)
- Project: Developed "pGluc," a personalized blood glucose prediction and management service for Type 1 Diabetes patients, leveraging AI (MAML) and CGM data.
- Awarded by: San Jose State University Silicon Valley Center for Operations & Technology Management

Korea Carbon Industry Promotion Agency President's Award *Dec. 5, 2024*
2nd Jeonbuk Youth Big Data Competition

- Team: Bicycle Point (Kihoon Moon, Seohyeon Yoo)
- Project: Proposed an AI-based optimization plan to revitalize Jeonju's public bicycle system by analyzing floating population and facility data to suggest optimal new rental station locations.
- Hosted by: President of Korea Carbon Industry Promotion Agency. (Ref: No. 2024-10)

Excellence Award *Sep. 22, 2024*
6th Hackathon Competition, Dept. of Software Engineering, Jeonbuk National University

- Team: Coding Farmers (Kihoon Moon, Hyowon Kim, Eunjin Shim, Samuel Choi)
- Project: Developed a project related to partnering with local businesses and managing rental services.
- Hosted by: Head of Department of Software Engineering, Jeonbuk National University. (Ref: No. 2024-003)

Top Excellence Award *Sep. 12, 2024*
2024 Jeonju ICT Innovation Square Digital New Technology Idea Competition

- Project: Proposed "Smart Blood Sugar Guardian," an AI-based system for predicting and managing blood glucose levels for diabetic patients using CGM data and meta-learning.
- Awarded by: President of Jeonju Information & Cultural Industry Promotion Agency (JICA). (Ref: No. JICA-24-21)

Rural Development Administration Administrator's Award *Nov. 16, 2023*
1st Jeonbuk Youth Big Data Competition

- Team: Coding Farmers
- Project: Developed a "Shopping Service Platform based on Agricultural Product Quality and Market Price Prediction," utilizing image-based quality assessment and LSTM-based price forecasting.
- Hosted by: Administrator of Rural Development Administration. (Ref: No. 27182)

Grand Prize *Dec. 22, 2022*
Image Sound Matching AI Training Data Hackathon Competition

- Team: IMAGEWAVE (Kihoon Moon, Ahyeong Kim, Younghun Yang, Hanna Oh, Jiwon Heo)
- Project: Developed an algorithm for classifying and matching images and sounds using CNN models, including image categorization and MFCC-based sound classification.
- Hosted by: Ministry of Science and ICT (MSIT), National Information Society Agency (NIA), Image Sound Matching AI Training Data Construction Consortium.
- Awarded by: Mayor of Jeonju (Ref: No. 2100)

Certificates and Courses

Silicon Valley Innovation Program *Jan. 14 – Jan. 24, 2025*
San Jose State University Silicon Valley Center for Business & Technology

- Completed on: Jan. 24, 2025 (Issued: Jan. 24, 2025)
- Program Duration: January 14 – January 24, 2025

LG Aimers (6th Batch) Data Intelligence Program *Jan. 2025 – Feb. 2025*
LG AI Research & Ministry of Employment and Labor

- Completed on: Feb. 27, 2025 (Issued: May 7, 2025)
- Hackathon Topic: AI-based prediction of pregnancy success for infertility patients (Ranked 176th out of 794 participants).
- Key Contributions:
  - Engineered new features by analyzing domain-specific data and relevant research to improve model performance.
  - Utilized CatBoost for effective handling of numerous categorical features prevalent in the dataset.
  - Implemented an ensemble model combining CatBoost and XGBoost, enhancing predictive accuracy.
  - Conducted data preprocessing including outlier handling (log transformation) and management of highly correlated features.

Military Personnel SW · AI Competency Enhancement - Basic AI Course *Jun. 2022 – Dec. 2022*
kakaoenterprise & goorm

- Completed the 2022 National Defense SW · AI Competency Enhancement Program.
- Issued on: Dec. 31, 2022

ICT Innovation Square Online Coding Education Program *Jun. 2022 – Dec. 2022*
goorm Inc.

- Completed AI and software expert training course.
- Organized by: Ministry of Science and ICT, National IT Industry Promotion Agency (NIPA), Jeonju City, (Foundation) Jeonju Information & Cultural Industry Promotion Agency.
- Issued on: Dec. 12, 2022

Extracurricular Activities

President, Student Council of Department of Software Engineering *Dec. 2023 – Dec. 2024*
Jeonbuk National University

- Led and represented the student body of the Software Engineering department.
- Successfully organized and managed major departmental events such as "Software Engineering Day" and "Membership Training (MT)."

English Language Study Program *Jan. 2024 – Feb. 2024*
Centre for English Language Teaching (CELT), University of Western Australia (UWA)

- Completed an intensive English language course focusing on speaking, listening, and writing skills.
- Experienced a multicultural environment and engaged in various cultural activities.

Skills and Techniques

Programming Languages: Python (Proficient)
AI/ML Frameworks: TensorFlow, PyTorch, Scikit-learn, CatBoost, XGBoost (Experienced)
AI/ML Concepts: Deep Learning (CNN, Bi-LSTM, Transformer architecture including Self-Attention and Positional Encoding), Meta-Learning (MAML), Machine Learning, NLP, Ensemble Methods
NLP Techniques: TF-IDF, SBERT
Data Analysis: Big Data Analytics, Statistical Analysis
Tools: Git, Docker (Basic), GCP (model deployment), AWS EC2 (Docker-based deployment)