

Boram Lee

<https://www.linkedin.com/in/boramleeemma>

Email: boramlee0418@gmail.com

Mobile: +1-240-263-8441

College Park, MD, USA

EDUCATION

- **University of Maryland, College Park** College Park, MD
Master of Data Science Aug 2024 – May 2026
- **Korea University** Seoul, Republic of Korea
Master of Engineering in Brain and Cognitive Engineering (GPA: 4.21) Mar 2015 – Feb 2017
Bachelor of Science in Nursing (GPA: 3.61) Mar 2011 – Feb 2015

SKILLS AND AWARDS

- **Languages:** Python, SQL, R programming, MATLAB, JAVA **Technologies:** AWS, GCP, Docker, Pytorch, Tensorflow
- **Awards:** Grand Prize in the AI/ML (Machine Learning) at the 2025 UMD InfoChallenge with EY UHI (Urban Heat Island) data

PROJECTS

- **UHI Predictive Model** **Awarded*: Developed a regression predictive model for predict UHI index based on satellite image data; Visualization in exploratory data analysis with domain knowledge.
- **Spotify Profit Optimization Challenge**: Conducted data analysis to maximize live concert profit using Spotify Top 50 songs and artist tour revenue data. Contributed to data exploration and visualization.
- **Alzheimer Classification**: Advanced a classification model for four stages of Alzheimer's disease using CNN transfer learning techniques on MRI data; Feature engineering to refine model complexity; Implemented statistical inference using F1 score.

EXPERIENCE

- **AI Medical Innovation Center, Hallym University** Chuncheon, Republic of Korea
Data Engineer / Backend Developer Mar 2024 – July 2024
 - **Elderly Friends (ELF)**:
 - * **Mobile AI voice assistance application for managing health schedules and mental well-being of seniors.**
 - * Designed and implemented the database architecture.
 - * Integrated STT (Speech-to-Text), ChatGPT, and TTS (Text-to-Speech).
 - * Analyzed conversation data using SQL and PyTorch.
- **KSOLUTIONS Corp.** Seoul, Republic of Korea
Data Manager Oct 2023 – Dec 2023
 - **Industrial security CCTV data warehouse**:
 - * **CCTV data for an AI-powered industrial security and surveillance detection system.**
 - * Designed and managed pre-processing pipelines for CCTV video data warehouse.
- **LG Uplus, a major telecommunication company** Seoul, Republic of Korea
Data Analyst/Project Manager Mar 2019 – Oct 2022
 - **AI Contact Center (AICC)**:
 - * **AI Callbot for customer support platform**
 - * Designed the data pipeline for the AICC from call input to storage of call and text data
 - * Deployed the machine learning model capable of handling 200 simultaneous consultation calls with an average response accuracy of 92.5% and reduced response time to 2.2 seconds after unit and integration tests.
 - **Real Time STT (RT-STT) data warehouse**:
 - * Designed data pipeline of RT-STT
 - * Led the development of the RT-STT data warehouse for advanced customer consultation analysis, integrating 320 recording channels, 640 STT channels, and 22 physical servers with the legacy system
 - * Conducted statistical data analysis based on SQL and Python
 - **ML-based Chatbot Solution development for Customer Consultation**:
 - * Analyzed legacy chatbot text data to identify areas for improvement
 - * Designed and managed an ML-based chatbot platform for customer consultation, enhancing intent classification systems with hybrid algorithms
 - * Collaborated with CSR to explore customer consultation database and to meet customer needs
 - * Achieved key KPI – average accuracy of 91.4% and reduced response time to 1.3 seconds
 - * Operational production support through KPI monitoring systems

- * Executed periodic updates with training data quality check to improve model performance three times annually based on user data analysis [Chatbot Web Link]

Researcher for Technical Research and Assessment

May 2017 – Mar 2019

- **Research for deep learning algorithms:**

- * Executed POC for NLP module, implementing statistical inference to compare and evaluate performance of multiple deep learning-based NLP module
- * Assessed commercialization feasibility based on business logic
- * Data analysis techniques based on R, pytorch, and tensorflow.

PUBLICATIONS

- K. So, **B. -R. Lee**, H.-J. Kim, J. -A. Sim, D.-S. Shin, D. Duong, K. Meisinger and D.-O. Won*. (2024, July 15-19). *Designing Conversational Voice Companion for Older Adults Living Alone Based on Large Language Models*. 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Orlando, Florida, USA
- Won, D.O., **Lee, B.R.**, Seo, K.S., Kim, H.J., & Lee, S.W. (2019). Alteration of Coupling between Brain and Heart induced by Sedation with Propofol and Midazolam. *PLOS ONE*, 14(7), 1-20. [PDF Link] : **using Matlab and python**
- **Lee, B.R.**, Won, D.O., Seo, K.S., Kim, H.J., & Lee, S.W. (2017, January 9-11). *Classification of wakefulness and anesthetic sedation using combination feature of EEG and ECG* [Paper presentation]. 2017 5th International Winter Conference on Brain-Computer Interface (BCI), Gangwon, Republic of Korea. [PDF Link] : **using Matlab and python**

PATENTS

- **Lee Boram**, & Jeon Byeongjin. 2023. The method and apparatus for classifying the intent of an utterance. KR20230085406A, filed December 7, 2021, and issued Jun 14, 2023. [Google Patent Link]
- **Lee Boram**, & Lee Jongeon. 2021. Apparatus and method for correcting error of speech recognition. KR102324829B1, filed December 2, 2019, and issued November 11, 2021. [Google Patent Link]
- **Lee Boram**, Lee Seongwhan, and Won Dongok. 2018. Apparatus and method for monitoring depth of sedation. KR101893596B1, filed December 22, 2016, and issued August 31, 2018. [Google Patent Link]