Boram Lee

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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 through conversations with an AI assistant; Designed and implemented the database architecture; Integrated STT (Speech-to-Text), ChatGPT, and TTS (Text-to-Speech) for automated interactions; **Conducted analysis of the conversation data to extract insight for further advancement based on SQL and pytorch.**
- **LG Uplus** — Seoul, Republic of Korea
  Data Analyst/Project Manager — *Mar 2019 – Oct 2022*
  - **AI Contact Center (AICC)**: 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

- 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]