Jennie Jinhee Bae

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EDUCATION

University of Southern California, Los Angeles, CA — Aug 2022-May 2024
Master of Science, Computer Science (GPA: 3.77/4.0)
- **Coursework Highlights**: *Web technologies, Information Retrieval & Web Search Engines, Database systems, ML for Data Science*

Gachon University, Gyeonggi-do, South Korea
Master of Engineering, Computer Engineering (GPA: 4.5/4.5) — Sep 2020-Feb 2022
Bachelor of Engineering, Computer Engineering (GPA: 3.95/4.5, cum Laude) — Mar 2017-Feb 2021

WORK EXPERIENCE

Software and Algorithm Developer — July 2024-Present
USC Information Sciences Institute, Marina Del Rey, CA (Remote)
- Implement algorithm and simulator frameworks for detecting and tracking radar signals, enabling rapid adaption in hardware on-chip

Software Engineer Intern — Jun 2023-Aug 2023
Age of Learning, Glendale, CA
- Deployed **APIs** for authentication to streamline user access by integrating third-party APIs using **PHP** and **AWS SDK** on **Docker**
- Achieved **10%** reduction in response time by utilizing **Datadog** and **Artillery** for scalability and traffic monitoring while version control
- Engaged in unit tests and integration tests for multiple features, including data encryption on distributed system clusters in agile
- Developed a chatbot software in **Python** for improving user experience by leveraging the **ChatGPT API** and connected it to a topic categorization feature with **LLMs** framework; Langchain, then stored targeted information to **SQL** database as user activity logs

Software Engineer — Jan 2022-Jun 2022
K2soft, South Korea
- Designed **API** gateway features to cache frequently requested data from smart farm IoT sensors with **Flask** and **AWS**, while intelligently routing requests to targeted data processing components using **Python**, resulting in **30%** reduction in response latency
- Built a real-time dashboard to visualize IoT sensor data for engineers in **Typescript** frontend, boosting working efficiency by 80%
- Automated the smart farm system in real-time using heuristic machine learning, resulting in a **12%** increase in production rate
- Created a STT translation that supports **103** different languages by integrating Google API, processing over **1**hr/day of audio data

Research Assistant — Mar 2019-Feb 2022
Artificial Intelligence Lab, South Korea
- Released an **android application** predicting **5** depression levels using machine learning model for wireless ECG machine data
- Engineered a colorectal cancer gene detection model in **Python** to improve diagnostic precision and early detection by leveraging data analysis, k-means clustering, and feature selection methods, achieving **94%** classification accuracy *Paper (Mathematics)*
- Classified normal and abnormal heartbeats using deep learning with operating statistical features for medical examinations, resulting in **97%** accuracy, further providing this algorithm in a real-world medical setting *Paper (2020ICTC), Paper (2020BCPT)*
- Surpassed traditional **CNN** performance by **13%** in detecting **5** distinct emotions by modifying CNN structures *Paper (2021ICTC)*

PROJECTS

Event Search Web Application *demo link* — Jan 2023-Apr 2023
- Coded an event search web app to show details on one page by incorporating **4** external services such as Ticketmaster, Spotify, etc
- Constructed the service to **iOS app** with auto complete, location detection, linking to SNS, favorite features to enhance functionality
- Reduced codebase by **40%** by refactoring and optimizing features with **Node.js** for backend server and **Bootstrap** for frontend UI

Multimedia System Design — Jan 2023-May 2023
- Performed functional interfaces in **Python** for interactive exploration of video sequences by extracting and mapping data into movies
- Led reusable functions for aligning sound and images in videos using **Librosa** and **STFT**, improving indexing accuracy by **45%**
- Utilized **Java** to address aliasing issues in images by resampling and filtering images in both the spatial and temporal domains

TECHNICAL SKILLS

Languages: Python, Java, C/C++, PHP, MySQL, JavaScript, HTML, CSS, TypeScript, SwiftUI
Tools: Git, Artillery, Datadog, Docker, AWS SDK, GCP, AWS, Arduino
Frameworks: Angular, Bootstrap, Node.js, Apache Tomcat, Keras, Tensorflow, Numpy, Pandas, Langchain