Sungwoo Lee

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WORK EXPERIENCE

Software Engineer | Milliman Nov 2021 – Apr 2023

- Developed and maintained actuarial modeling and insurance reserving software, the primary tool for actuaries. The software features a comprehensive code editor for Visual Basic for Application (VBA), version control, debugging, and a transpiler converting VBA to C++ and then to machine code. It can also run the code on various environments such as on a Desktop leveraging multi-threading, or with a scheduler and a server leveraging high-performance computing (HPC) and report the result. Resulted in a significant reduction in clients' CPU usage, up to 98%
- Contributed to the renewal of the actuarial modeling software, collaborating with actuaries in a cross-functional team. Involved ideation, implementation of new features, wireframing, technology migration (e.g., from .NET framework to Node.js), and data migration between different databases
- Played a key role in acquiring an estimated 50% of the total market share for the developed product
- Architected backend services using Microservices architecture to enhance scalability, maintainability, and flexibility
- Contributed to database schema design and query optimization to improve the performance of slow queries
- Modified parts of open-source software, such as TypeORM, and integrated them with proprietary software as needed
- Designed, implemented, and documented various types of APIs, including GraphQL, RPC, and REST
- Improved the continuous integration (CI) process by implementing build and test automation pipelines with Jenkins and Github Webhooks, utilizing declarative pipelines to enhance maintainability
- Technologies: TypeScript, Javascript, Node.js, NestJS, GraphQL, MongoDB, Git, Postman, Docker, Linux, Azure, C#, VB.NET, WinForms, DevExpress, SQLite, LiteDB, MS SQL Server, GitHub Webhooks, Jenkins, Swagger

Machine Learning Engineer Intern | ITS Jun 2019 – Dec 2019

- Implemented a pipeline for aggregating, preprocessing, and storing industrial data in the form of multivariate time series
- Developed a classification machine learning model using the k-NN algorithm and achieved 97% classification accuracy
- Technologies: Python, MySQL, TensorFlow, scikit-learn, pandas

Undergraduate Research Intern | Nanostructured Polymer Materials Theory Lab (UNIST) Sep 2018 – Jun 2019

- Researched and implemented numerical simulation algorithms, such as the Metropolis-Hastings algorithm or Wolff algorithm (Monte Carlo method), to simulate, visualize, and analyze phase transitions of a mathematical model of ferromagnetism in statistical mechanics (Ising Model)
- Technologies: Python, Fortran, C++, Linux

PROJECTS

Vocabulary Study Application

- Developed a full-stack web application that fetches and parses data using third-party dictionary APIs
- Implemented authentication and authorization leveraging Google OAuth2.0
- Technologies: Java, Spring Boot, Hibernate, Maven, MySQL, MongoDB, Docker, React, Material UI, GCP

Crime Report Application

- Developed a web application with a team contracted by the Ulsan City Police Department in South Korea to help foreigners report criminal activities easily and safely
- Implemented features such as collecting users' geolocation data and synchronizing data between databases and Excel files
- Technologies: Javascript, Python, PostgreSQL

EDUCATION

Ulsan National Institute of Science and Technology (UNIST) Ulsan, South Korea

Bachelor of Science, Major in Computer Science and Engineering, Minor in Physics

- National Science and Engineering Scholarship Awardee (merit-based)
- Ranked 5th best university in South Korea by THE World University Rankings 2022

ADDITIONAL

Technical Skills: TypeScript, Javascript, Node.js, NestJS, GraphQL, VB, C#, SQLite, MongoDB, SQL Server, Jenkins, Linux, Azure, Git, Postman, Docker, Python, MySQL, C++, Java, Spring Boot, Maven, Hibernate, React

Awards: Junction Asia 2022 Hackathon - Microsoft Track Finalist (3rd Place)