

# DONGHYEUN LEE

## FULL STACK DEVELOPER

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### SUMMARY

Full Stack Developer with over 4 years of work experience in biotechnology engineering, specializing in Java, Python, and machine learning. Key achievements include developing a dynamic AI-powered web application leveraging cutting-edge AI and machine learning models, and designing methodologies using Python for defect characterization of nanopore wafer chips.

### KEY SKILLS

Languages: Java, Python, JavaScript, SQL, C++  
Frameworks: Spring Boot, Flask, React, MyBatis  
Databases: MySQL, PostgreSQL  
Tools: Docker, Git, VS Code, Eclipse  
Cloud & DevOps: Linux, GitHub Actions

### Certificates

#### IBM – Advanced Machine Learning and Signal Processing

Credential ID: MSF6W4FE9RS6 • Issued: Jun 2024 • Expires: Jun 2034

#### DeepLearning.AI – Introduction to TensorFlow for AI, ML, and DL

Issued: May 2024 • Expires: May 2034

#### DeepLearning.AI – Convolutional Neural Networks in TensorFlow

Issued: May 2024 • Expires: May 2034

#### IBM – Data Analysis with Python

Credential ID: 8TAA6DNWHWM9 • Issued: May 2024 • Expires: May 2034

#### IBM – Databases and SQL for Data Science with Python (우등생 포함)

Credential ID: VQ7B2QDEQVX2 • Issued: May 2024

#### IBM – Python for Data Science, AI & Development

Credential ID: VK283D2LM9U9 • Issued: May 2024 • Expires: May 2034

### EDUCATION

University of Texas at Austin

Austin, TX

Post Graduate Program in Artificial Intelligence & Machine Learning

06/2024 - 03/2025

- Gained comprehensive knowledge in AI and machine learning, including data analysis, algorithm development, and model deployment, with a focus on real-world applications and practical problem-solving skills
- Further technical focus in Python, NLP, and Generative AI training

## HiMedia Academy

Seoul, South Korea

### AI and Full Stack Development in Java Bootcamp

10/2024

- Provided in-depth knowledge of IT infrastructure management, including system design, network security, and data management, with a focus on optimizing performance and ensuring reliability in enterprise environments
- Training included SQL database management, frontend and backend development in Python and Java, and a final project developing an AI service application

## Sogang University

Seoul, South Korea

### Masters of Chemistry

02/2020

Thesis: *Characterization and Optimization of DNA Binding Fluorescent Protein for Acquisition of High SNR Fluorescent Microscope Images.*

## SUNY Buffalo State University

Buffalo, NY

### Masters of Science in Biomedical Engineering

06/2018

## Hong Kong University of Science and Technology

Clearwater Bay, HK

### Bachelors of Science in Chemical and Bioproduct Engineering

05/2013

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## WORK EXPERIENCE

### Proteina Inc.

Seoul, South Korea

#### Production and Process Development Senior Researcher

07/2021 - 02/2024

*Biotechnology company focused on advancing innovative protein-based products and solutions for healthcare, agriculture, and industrial applications.*

- Developed and optimized thin film deposition, biochemical functionalization, and anti-fouling processes for microarray chip production
- Led the design and testing of microarray chip assembly processes, including jet dispensing and non-destructive QC for 96/384 well platforms
- Contributed to pharmaceutical drug assessment, assay optimization, and developed Python-based tools for ELISA/QC/Manufacturing Big Data Analysis

### Palogen LLC

Seoul, South Korea

#### Research And Development Engineer

08/2020 - 07/2021

*Biotechnology company developing cutting-edge nanoelectronic sensor platforms for advanced diagnostics and sequencing in healthcare and life sciences.*

- Designed and implemented methodologies for defect characterization of nanopore wafer chips using Python data analysis and established quality control protocols for manufactured nanopore microarray chips
- Developed production methods for chip bio-conjugation, including vapor deposition, biomarker dotting via liquid handlers, and stability enhancement through freeze-drying techniques
- Contributed to ISO13485 compliance for molecular diagnostic GMP facilities, prepared IRB for clinical testing of COVID microarray chips, and participated in clinical studies

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## OTHER SKILLS

### Global Languages

English (Professional, TOEIC 2019) | Korean (Fluent/Native) | Mandarin Chinese (Conversational) | Japanese (Conversational)

### Strengths

Diligent Learner | Passionate Academic | Creative Problem Solver | Enduring Tenacity | Team-oriented

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## PROJECTS

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### "Prevention of 'Lonely Death'" Web App

Seoul, South Korea

Donguk University

10/2024

"Lonely deaths" in South Korea, also called *godoksa* in Korean, refer to people who die in social isolation, often without anyone noticing for a significant period of time, highlighting a growing problem of social disconnect in the country. This project aimed to develop a multi-functional AI-powered Flask web application integrating user authentication, emotion detection, voice recording and analysis using modern AI and machine learning models.

- Developed a dynamic AI-powered web application using React.js, integrating AI technologies, data processing, and web development frameworks to deliver an engaging user experience
- Implemented a robust user authentication system with JWT tokens, password hashing, email verification (via Flask-Mail), and MySQL database management for secure account handling
- Integrated AI emotion recognition models (RAVDESS and FER) for analyzing emotions in images and audio, visualizing results through Matplotlib and Seaborn, and processing audio data to generate CSV outputs and graphical reports

### Book Management System Term Project

Seoul, South Korea

HiMedia Academy

06/2024

For this project, I collaborated in a team of four to develop a Java-based Inventory Management System using Spring Boot, streamlining workflows for managing stocks, orders, and user data with secure APIs and user role permissions.

- Designed and implemented calendar-based CRUD functionality for summarizing and modifying book order data, enabling users to leave memos and record cause-effect notes
- Built backend logic using Spring Boot within the Model-View-Controller (MVC) architecture to handle inventory management tasks efficiently
- Contributed to secure API endpoint development and role-based access control to ensure data security and appropriate permissions for different user roles

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## REFERENCE

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### Joel Rand

Principal Software Architect II | McKinsey & Company (*retired*)

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### Kyubong Jo

Professor | Sogang University

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### Alicia Kyungjin An

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### Kevin Kyung Chan Park

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