Geonwoo Lee

Charlotte, NC, USA
December 2, 2025

EDUCATION

- **University of North Carolina at Charlotte** — Charlotte, NC, USA
  M.S. in Computer Science (Concentration: Artificial Intelligence) — *Aug 2025 – May 2027*
  - Coursework: Introduction to Machine Learning, Artificial Intelligence, Database Systems

- **Eulji University** — Seongnam, South Korea
  Bachelor of Medical IT and Marketing (Minor in Silver Care Start-ups) — *Feb 2016 – Feb 2022*
  - Coursework: Computer Algorithm, Medical Image Processing, Data Structure, Software Engineering, Practice of Data Analysis, Database, Mathematics
  - Awards: Department Highest Academic Scholarship (2021), Academic Excellence Scholarship (2021), Excellence in Club Activities Award (2021)

MACHINE LEARNING & AI PROJECTS

- **From Fine-Tuning to Building Language Models for Different Domains** — NC, USA
  Graduate Researcher (**Advisor: Prof. Mohsen Dorodchi**) — *Nov 2025 – Present*
  - Conducting research on **Retrieval-Augmented Generation (RAG)** and **Fine-Tuning (PEFT/LoRA)** techniques to integrate domain-specific knowledge into Large Language Models.
  - Experiment with Python-based NLP and LLM frameworks (e.g., Transformers) to fine-tune or adapt base LLMs with domain-specific corpora and evaluation tasks.
  - Study how LLMs are built and how fine-tuning and domain adaptation can result in deployable language models usable by practitioners in that domain.

- **House Price Prediction with Regression Models** — NC, USA
  Individual Project — *Sep 2025 – Dec 2025*
  - Built an end-to-end regression pipeline on Kaggle's "House Prices – Advanced Regression Techniques" dataset (1,460 homes, 79 features) using Python (Jupyter Notebook, pandas, scikit-learn).
  - Implemented seven models (Linear Regression, Ridge Regression, Polynomial Ridge Regression, Random Forest, Gradient Boosting, XGBoost, LightGBM) on top of a unified preprocessing pipeline with ColumnTransformer, median/mode imputation, scaling, and one-hot encoding.
  - Achieved best performance with XGBoost (R^2 0.92, RMSE 24.5K, 71% of predictions within 10% of true prices), outperforming all classical models.

WORK EXPERIENCES

- **GEOTWO Co., Ltd (Full-time)** — Gyeonggi, South Korea
  Full-stack Developer — *Jul 2022 – May 2023*
  - Designed and developed web applications integrating front-end and back-end systems for performant, user-friendly solutions.
  - Collaborated with cross-functional teams, aligning with project goals and user requirements.
  - **Key Project 1: QA Web Application** — *Sep 2022 – Apr 2023*
    Front end with React, TypeScript, jQuery, Semantic UI; back end with Java/Spring Boot; version control and team collaboration with SVN.
  - **Key Project 2: Reference Web Tutorial** — *Jul 2022 – Aug 2022*
    Built tutorials for O2Platform, O2Map, O2asis; JavaScript async operations; refactoring and organization with OpenLayers.

RESEARCH EXPERIENCES

- **Undergraduate Researcher, Eulji University (Prof: Ki-Young Lee)** Seongnam, South Korea
  A Study on Automatic Reporting of Vehicle Accident Sensors *Oct 2019 – Nov 2020*
  - Developed an MCU-based sensor integration system detecting severe collisions via temperature, humidity, GPS, and Wi-Fi analysis to enable automated reporting to the nearest fire station.
  - Aimed to reduce fatalities and injuries through faster emergency intervention in driver-incapacitated collisions.

PROFESSIONAL DEVELOPMENT

- **Java Android Web App Developer Program, (Ezen IT Academy)** Seoul, South Korea
  Dec 2021 – Jun 2022
  - Completed a 7-month program on Open API Utilization: Java Android Web App Development with project-based training.
  - Built foundations in OOP (Java) and strengthened data structures and algorithms.
  - Gained full-stack experience with Vue.js, Spring Framework, and MySQL.
  - **Key Project 1: Hey, Buddy (Collaboration Tool)** *Apr 2022 – Jun 2022*
    Team lead & full-stack; Spring & MyBatis on Tomcat 9.0; deployed on AWS EC2 (CentOS 7); implemented real-time video conferencing with WebRTC and Zoom API; version control via GitHub.
  - **Key Project 2: Today's House Admin BBS** *Dec 2021 – Mar 2022*
    Full-stack with Spring and Bootstrap; MySQL-backed features (auth, uploads, validation); integrated Daum Map, Kakao Geolocation, and social login APIs (Kakao, Facebook, Google, Naver).

EXTRACURRICULAR ACTIVITIES

- **CAIR AI Research Club (UNCC)** Charlotte, NC
  Regular Member *Sep 2025 – Present*
  - Implemented a basic neural network using PyTorch, practicing how to code key parts like data scaling, the training loop, and predictions.
- **Coding Club (Eulji University)** Seongnam, South Korea
  Regular Member *Mar 2021 – Feb 2022*
  - Led a Digital Currency Mining Game in C# (modernized Pac-Man) with updated aesthetics and gameplay; managed planning and collaboration.

SKILLS

  - AI & Machine Learning: Supervised regression, tree-based ensemble methods (Random Forest, Gradient Boosting, XGBoost), model evaluation (R^2, RMSE, MAE)
  - Programming: Python (primary), Java, JavaScript
  - Data & Databases: pandas, NumPy, SQL (MySQL, PostgreSQL, Oracle)
  - Tools & Platforms: Jupyter Notebook, scikit-learn, Git/GitHub, AWS, Spring Boot