Wonjune Lee

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Education

George Mason University, Virginia, United States — Aug 2023 - May 2026
Bachelor of Science in Computational and Data Sciences — **GPA: 3.93 / 4.00**

- Relevant Courses: AI, Machine Learning, Modeling and Simulation, Data Mining, Data Visualization, Data and Database, Data Structure, Cloud computing, Statistics, Mathematics
- Dean's List for 2023 FALL, 2024 SPRING, 2025 SPRING, 2025 FALL and Fairfax Patriot Access Scholarship 2025 - 2026

Ghent University — Feb 2019 - Aug 2021

Skills

Technical Skills: Python, R, SQL, Microsoft Office Suites (Words, PowerPoint, Excel)
Languages: Korean (Native), English (Fluent)

Professional Experience

Ulsan National Institute of Science and Technology (UNIST) — Jul 2025 - Current
Undergraduate Researcher - Artificial Intelligence Graduate School

- **Machine Learning & Deep learning Project** | Python — View Project
  A Comparative Study of Machine Learning and Deep Learning Methods for Water Pipeline Leakage Classification
  - Conducted a comparative study on real-world frequency-domain time-series data collected from 391 water-pipeline sensors (512 frequency signals per day over 5 consecutive days) in Daegu, South Korea, benchmarking K-Nearest Neighbors (KNN), Random Forest, CNN, and deep learning models including a fine-tuned Multilayer Perceptron (MLP) and Graph Transformer for a three-class classification task (normal, general leak, micro leak)
  - Designed and fine-tuned a Graph Transformer model leveraging attention across distributed sensor signals, achieving competitive overall performance (accuracy ≈ 96.4%) and perfect precision and recall (1.000) for micro-leak detection, while improving class-wise robustness and interpretability compared to classical baselines
  - Collaborated with the Electronics and Telecommunications Research Institute (ETRI) as part of a government-funded research project on urban water pipeline monitoring
- Learning Graph Neural Networks (GNN) and Graph Retrieval-augmented generation(RAG) by participated at lab seminar

Publication

"A Comparative Study of Machine Learning and Deep Learning Methods for Water Pipeline Leakage Classification", Korea Software Congress, Yeosu, Korea, December 2025. View Paper View Poster

Projects

Swift Grader | HackFax x PatriotHacks 2026 Hackathon | Backend, Python, FastAPI — View Project

- Built an LLM-powered essay grading system using a multimodal model to evaluate submissions against teacher-defined rubrics. Engineered multi-format file processing (PDF, image, text) for seamless essay and rubric ingestion. Reduced manual grading time by ~80% by automating rubric-based evaluation while maintaining human-in-the-loop review
- Designed and implemented a FastAPI backend grading pipeline generating structured, criterion-level feedback
- Delivered a production-ready prototype in 3 days under hackathon constraints

Data Analytics and prediction | SQL — View Project
Premier League SQL Analytics Project

- Built a fully normalized SQL database using 2023–2024 Premier League player and team statistics to support efficient analytical queries and conducted advanced SQL-based analyses to identify key performance indicators, showing strong correlations between offensive productivity, team ratings, possession/xG metrics, and final league rankings ($r \approx 0.6$), with the top-ranked team matching the actual next season league champion

Data Visualization | R — View Project
Crime rates in the Washington, D.C.

- Visualized and compared crime trends across multiple offense categories over an 8-year period in Washington, D.C.
- Analyzed relationships between crime rates, student population, and housing prices using comparative visualizations

Leadership Experience

PACO Student Council — May 2019 – Feb 2021
As a part of student council, organized large-scale campus events and music festivals while leading sustainable, eco-friendly planning initiatives and resolving on-campus operational issues at Ghent University