Tae Rim Kim

kim3217@purdue.edu • Lafayette, IN • linkedin.com/in/TrKim • https://taerim.work

EDUCATION

Purdue University - Main Campus **West Lafayette, IN**
Bachelor of Science in **Data Science** May 2026

- **Relevant Coursework:** Data Mining & Machine Learning, Information Systems, Introduction to Relational DBMS, Applied Regression Analysis, Large Scale Data Analytics, Data Structures & Algorithms, Probability, Statistical Theory, O-O Programming.

PROFESSIONAL EXPERIENCE

Undergraduate Research Assistant, SIMPLE Lab – Purdue University (Advisor: kyukang@purdue.edu) Mar 2022 – Present

- Explored **large-scale LiDAR point cloud data** processing and segmentation using **unsupervised learning**, **CNNs**, and **GCNs**.
- Collaborated effectively with 10 lab members to **enhance and share research outcomes** through weekly lab seminars.
- Processed **large-scale census data** from 6229 Block Groups in the Chicago, IL area to explore inequality of available jobs accessible through public transport depending on median wages using **Pandas** and **ArcGIS**.
- Published research findings on **computer vision-based** construction site inspection by implementing a **YOLOv7 segmentation framework** for automated fence stability assessment under severe weather conditions, currently under review at an engineering journal.[2]
- Implemented a **fine-tuned Alpaca-LoRA multi-modal LLM pipeline** with prompt engineering for natural language input processing and analysis with a paper in progress. [1]

Social Service Agent, Jongno Self-Support Center (Alternative Military Service) – Seoul, South Korea Aug 2023 – May 2025

- Served in a welfare center supporting citizens in need with job training and reintegration programs as part of Korea's mandatory alternative military service building strong relationships with clients and social workers.
- Designed and implemented a custom **MySQL asset management database** to track government property, replacing a manual system reducing data entry errors, and improving efficiency.

Full Time Research Summer Intern, SIMPLE Lab – Purdue University May 2022 – Aug 2022

- Worked on **INDOT funded $100M** government project on National EV adaptation, publishing a technical report to the *JTRP*. [3]
- Developed and executed an **agent-based simulation model** using **AnyLogic** to generate data on EV charging needs of 80,000 EVs.
- Analyzed and visualized **large-scale generated simulation data** using **Pandas** and **ArcGIS** to extract insights and support research findings.

Software Department Summer Intern, Koolsign – Seoul, South Korea Jul 2021 – Aug 2021

- Conducted research on machine learning image and object detection methodologies on **Google Coral Edge TPUs**.
- Developed foundational skills in machine learning frameworks including **TensorFlow** and **PyTorch**.
- Collaborated in team meetings to discuss project progress and annotated training data for legacy license plate detection.

R&D Division Summer Intern, Catenoid – Seoul, South Korea Jul 2018 – Aug 2018

- Assisted in testing the stabilization of the company's applications before publishing updates as part of the QA team.

PUBLICATIONS

[1] Lee, J., **Kim, T.**, Chang, S., & Kang, K. (2025). "Multi-modal **Large Language Model Development Framework** for Construction Site Management: Focusing on Temporary Fences for Severe Weather Preparedness." (In Progress)

[2] Lee, J., **Kim, T.**, Hubbard, B., & Kang, K. (2025). "**Computer Vision-based** Temporary Fence Stability Inspection at Construction Sites for Severe Weather Preparedness." Engineering, Construction, and Architectural Management

[3] Ju, H. K., **Kim, T.**, Kang, K., Koo, D. D., Gkritza, K., & Labi, S. (2023). "A strategic assessment of needs and opportunities for the wider adoption of electric vehicles in Indiana." Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2023/04). https://doi.org/10.5703/1288284317590

LEADERSHIP EXPERIENCE

President, Korean Baseball Players: Led a 30-member cultural athletic student organization, organizing events while building a community, strengthening leadership, time management, and cross-cultural communication skills. May 2022 – May 2023

TECHNICAL SKILLS

Certifications: Fundamentals of Accelerated **Data Science with RAPIDS** **NVIDIA –** Jun 2022
AWS Certified **Cloud Practitioner** **Amazon Web Services –** Feb 2025

Programming & Frameworks: Python, Java, R, SQL, PyTorch, TensorFlow, Pandas
Data & Tools: AWS, Hadoop, Spark, BigQuery, Docker, ArcGIS, AnyLogic, PointCloud, Anaconda, Git
Languages: English (Native), Korean (Native), French (Conversational)