Juha Im

juha7195@gmail.com| LinkedIn | Github | United Kingdom | +44 747 0818 733

Professional Summary

Graduate MSc student in Advanced Computer Science with hands-on experience developing Generative AI (e.g. Transformer, VAE) for real-world NLP and vision tasks. Interested in building scalable, ML-powered applications and learning systems. Strong interpersonal and communication skills developed through 5 years of teaching, with proven ability to explain complex concepts clearly and work effectively in collaborative environments.

Education

MSc Advanced Computer science, *University of Manchester* **Sep 2024 - Sep 2025**

Result: Distinction(predicted)

- Modules: Foundation of Machine learning, Representation learning, Modelling data on the web, Querying data on the web, Text mining (NLP), Computer Vision and Cognitive robotics, Digital biology, Introduction to health informatics
- MSc Thesis: *Unsupervised Representation Learning for Spatial Transcriptomics*

BSc Computer science, *Korea National Open University* **Mar 2021 - Feb 2023**

Result: 3.6/ 4.5 GPA, equivalent to a U.K 2:1 honour degree

- Modules: Database Systems, Algorithms, Data Structures, Linear Algebra, Machine Learning, Cloud Computing, Computer structure, Software Engineering

Projects

ETL Pipeline for Ad impression Data | Github **Oct 2024**

- Developed an ETL solution transforming **JSON** Twitter ad impressions into a structured **SQLite DB** using **Python**.

SQL Query Optimisation **Nov 2024**

- Optimized database query performance by applying an index, resulting in a 23.5% reduction in response time.
- Redesigned a three-table join operation, replacing an inefficient CROSS JOIN, achieving 99.3% faster execution.
- Leveraged subquery flattening in SQLite, leading to an 8.8% reduction in response time for complex queries.

VAE Architecture Optimization and Variational Free Energy Analysis **Nov 2024**

- Experimented varying hidden layer sizes and latent dimensions to optimize the variational free energy (VFE).
- Identified a strong inverse correlation between VAE model complexity and generalization error.

Relation Classification on Semeval-2010 Task 8| *PyTorch, Scikit-learn, NumPy*|Github **Mar 2025**

- Investigated the comparative effectiveness of DeBERTa (transformer-based) and BiLSTM (recurrent model).
- Implemented an entity-aware representation strategy (RDEBERTa) achieving an F1-score of 0.80
- Developed Attention based BiLSTM with pretrained word embedding, resulting in a **67.5%** increase in F1 score.

Object Recognition on the CIFAR-10 and STL-10 |*PyTorch, Jupyter Notebook*| Github **May 2025**

- Conducted object recognition using both CNNs and traditional feature extraction methods (e.g., SIFT)
- Achieved 80% accuracy on the CIFAR 10, significantly outperforming a traditional method (37% accuracy).
- Employed data augmentation techniques to enhance model generalization, resulting in a 6% reduction in Loss.

Unsupervised Representation Learning for Spatial Transcriptomics |Thesis|Github **May 2025 – Sep 2025**

- Applied **generative models (VAE, transformers)** to spatial omics data for classification and imputation tasks.
- Developed a novel fine-tuning pipeline for CellPLM, introducing a Supervised Contrastive Loss head, achieving competitive clustering quality while reducing training time by up to **300x.**
- Optimized large-scale deep learning workflows on **HPC clusters**, integrating **Weights & Biases (W&B)** through robust **Slurm/Bash** scripting.

Experience

Jeonghyun Elementary School, South Korea - Elementary school teacher **Sep 2019 – Sep 2024**

- Delivered lessons to classes of 30+ students, demonstrating clear **communication** and adaptability.
- Built **stakeholder-facing skills** and consistently received high performance evaluations (4.5+/5).
- Managed responsibilities in high-pressure settings with strong multitasking and time management.

Technical Skills

- **Languages:** Python, SQL, Git, C++, Java, HTML/CSS, Bash
- **Developer Tools & Platforms:** Docker, Vscode, GitHub, Linux, Windows, LATEX.

Volunteering and Extracurricular

Southern Manchester Parkrun, UK – Marshal **Nov 2024 - May 2025**

- interacted and encouraged the participants around the course, warning them of any hazards.

Activities: Manchester AI club, StudentHack 2025, Women in Science and Engineering, UniCS, Life drawing