# Jiho Shin

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## Education

**Imperial College London – Biomedical engineering (Meng)** ***2022 – Present***

- Grade: First Class Expected (CGPA: 4.00)
  Year 1: 70.22%; Year 2: 73.82%; Year 3: 76.82%

**North London Collegiate School Jeju, South Korea – International Baccalaureate (IB)** ***2016 – 2020***

- Grade: 44/45 (CGPA: 4.00)

Mathematics HL (7); Physics HL (7); Geography HL (7); English SL (7); Korean SL (7); Chemistry SL (7)

## Research experience

**Undergraduate Research Assistant** – Applied Superconductivity Lab, **Seoul National University**

*Cost-Efficient Low-Field MRI magnet structures* ***Jul 2023 – Sep 2023***

- Conducted research to provide cost-effective healthcare solutions to resource-limited, underserved countries.
- Independently studied literature on superconductivity, electromagnet design, and magnetic field modelling, designing coil geometries and analyzing performance trade-offs under cost constraints.

**Undergraduate Research Assistant** – ICU Research Group, **Charing Cross Hospital**

*AI-assisted Multi-modal Sepsis Mortality Prediction Model* ***June 2024 – Aug 2024***

- Applied dimensionality reduction techniques (PCA, t-SNE) to integrate chest X-ray embeddings with clinical features for mortality prediction.
- Communicated with clinicians to identify clinical needs and align them with technical objectives, while collaborating with technical experts to select appropriate analytical and modeling approaches.

**Undergraduate Research Assistant** – Tanaka Lab, **Imperial College London**

*Automated Eczema Herpeticum Diagnosis from Medical images using AI* ***Aug 2024 – Oct 2024***

- Designed and compared CNN-based and feature-extraction models for EH diagnosis.
- Applied Grad-CAM and feature importance visualization for model interpretability.

**Project Technical Head (Undergraduate Research Project) – Tanaka Lab, Imperial College London**

*Advanced Optimization of Automated Eczema Herpeticum Diagnosis Model* ***Oct 2024 – June 2025***

- Led a team with no prior AI experience, conducting weekly meetings to mentor members and coordinate tasks.
- Compared multiple cutting-edge transfer learning architectures (InceptionV3, VGG16, ResNet50) and applied GAN-based data augmentation to overcome data imbalance.

**Master's Thesis – A Yang lab, Imperial College London & ICU Research Group, Charing Cross Hospital**

*Fusion of Clinical and Radiological Data using Unsupervised Learning for Patient State Representation* ***Oct 2025 – Present***

- Developing multimodal fusion frameworks that integrate chest X-ray with clinical data to generate interpretable patient representations.
- Designed benchmarking pipelines comparing image embedding models across thoracic disease labels and applied unsupervised clustering (UMAP, k-means, hierarchical) to identify disease-specific latent structures

## Related Experience

**International Quarantine Officer & Squad Leader – Republic of Korea Army** ***Aug 2021 – Feb 2022***

- Volunteered to serve as an international airport quarantine officer during COVID-19 pandemic, coordinating with medical teams and government officials to enforce national entry protocols under high-pressure conditions.
- Appointed as squad leader, managing and mentoring team of eight individuals.

**Undergraduate Teaching Assistant (UTA) – Imperial College London** ***Jan 2025 – Feb 2025***

- Mentoring first-year undergraduates in the theoretical principles of op-amp-based electronic circuits.

## Posters, Conferences, and Abstracts

- Poster presented on "Conceptual design of extremity MRI magnet using commercial MgB2 conductor" at Korean Society of Super-conductivity and Cryogenics (KSSC) conference. ***Sep 2023***
- Presented at the 2nd Johns Hopkins University-Korea Biotechnology Innovation Symposium on my current research on multimodal patient state representation for ICU sepsis patients. ***Oct 2025***
- Abstract submission to MedEurIPS workshop on "Benchmarking CXR Foundation Models with Publicly Available MIMIC-CXR and NIH-CXR14 Datasets" ***Oct 2025***

## Certificates

Machine Learning Specialization, Deep Learning AI – Online course by DeepLearning.ai ***Nov 2023***