

# JUNMO KIM

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## SUMMARY

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**AI Research Scientist** specializing in **Multimodal Foundation Models & Representation Learning**. 6+ years of experience building deep learning models on large-scale clinical data from 10+ hospital systems. Published 9 first-author papers in top healthcare and medical informatics journals (npj Digital Medicine, JAMIA, eClinicalMedicine, Communications Medicine). Expertise in multimodal foundation models, clinical NLP, pharmacovigilance prediction, and scalable ML pipelines across multicenter hospital systems.

## EXPERIENCE

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**Stanford University**, Stanford, CA

Mar 2026 – Present

*Postdoctoral Scholar — Dept. of Anesthesiology, Pain & Perioperative Medicine*

- Conducting research on multimodal foundation models using EHR and Omics data.
- Developing a multimodal EHR–SNP foundation model using UK Biobank (480K+ participants) and Stanford Health Care (2.2M+ patients) data for pharmacogenomic discovery.

**Seoul National University Hospital**, Seoul, Korea

Jul 2020 – Feb 2026

*Research Assistant — Biomedical Research Institute*

- Designed 'MedRep', a novel medical concept representation framework for general EHR foundation models, enabling transferable patient embeddings across heterogeneous clinical datasets (published in JAMIA).
- Built an OMOP CDM-based EHR foundation model to predict diverse adverse drug events across multiple hospitals, demonstrating cross-institutional generalizability (published in Communications Medicine).
- Developed multimodal foundation model using EHR and ECG for cardiovascular disease prediction, integrating structured clinical records with physiological signals (under review, npj Digital Medicine).
- Developed deep learning pipelines for pharmacovigilance: predicted C. difficile infections and cutaneous adverse drug reactions from longitudinal patient records (2 papers in npj Digital Medicine).
- Led IRB/DRB compliance processes and managed large-scale clinical data across 5+ hospital sites under strict privacy protocols.

## EDUCATION

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**Seoul National University** — Ph.D. in Bioengineering

Mar 2021 – Feb 2026

*Dissertation: Toward Multimodal Electronic Health Record Foundation Models*

**Korea University** — B.S. in Industrial Management Engineering & Mathematics

Mar 2015 – Feb 2021

## TECHNICAL SKILLS

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**ML / DL:** PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers, Foundation Models, Multimodal Learning, Continual Learning, Graph Neural Network

**Data & Scale:** Large-scale Data Processing (Ray, DuckDB, Modin, Multiprocessing), SQL (PostgreSQL, Oracle, BigQuery, MSSQL), Signal Processing (SciPy, Neurokit2, WFDB, VitalDB), Multi-GPU processing

**Statistics:** Meta analysis, Survival analysis, Causal inference

**Languages:** Python, SQL, R

**Domain:** Electronic Health Records, Physiological Signals (ECG, PPG, NIRS), IRB/DRB Compliance, Pharmacovigilance, OMOP CDM

## SELECTED PUBLICATIONS

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9 first-author publications including 2 in npj Digital Medicine, 1 in JAMIA, 1 in eClinicalMedicine (Lancet), 1 in Communications Medicine. Full list on [Google Scholar](#).

- MedRep: Medical Concept Representation for General EHR Foundation Models. **JAMIA, 2026**
- Prediction of antibiotic-associated cutaneous ADRs using EHR foundation models. **npj Digital Medicine, 2026**
- Pretrained patient trajectories for ADE prediction using CDM-based EHRs. **Communications Medicine, 2025**
- Deep learning-based prediction of C. diff infection caused by antibiotics using longitudinal EHRs. **npj Digital Medicine, 2024**
- Deep learning-based long-term risk evaluation of incident type 2 diabetes using electrocardiogram in a non-diabetic population: a retrospective, multicentre study. **eClinicalMedicine, 2024**

## AWARDS

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**Youlchon Foundation AI for All Fellowship (\$15,000/year)**, AI Institute at Seoul National University

2021 – 2025