



LinkedIn

Yejin Kim

ykim3030@gatech.edu

☎ (+1)-404-690-1304

in LinkedIn Profile 🌐 Personal Website



Website

OBJECTIVE STATEMENT

I am a Ph.D. student in computational biology and artificial intelligence, seeking a summer internship for 2025. My expertise lies in **spatial transcriptomics**, **interpretable deep learning**, and **drug discovery**. I am looking for opportunities to contribute to impactful projects and further develop my skills in these areas.

EDUCATION

Georgia Institute of Technology

Ph.D. in Bioinformatics, Department of Biomedical Engineering

Advisor: Prof. Sinha, Saurabh

Atlanta, United States

Sep 2023 - Aug 2028 (expected)

Gwangju Institute of Science and Technology (GIST)

M.S. in Artificial Intelligence

Total GPA: 4.25 / 4.50 (4.00 / 4.00 U.S. scale)

Advisor: Prof. Lee, Hyunju

Thesis: PINNet: a deep neural network with pathway prior knowledge for Alzheimer's disease

Gwangju, Republic of Korea

Mar 2021 - Feb 2023

B.S. in Life Science

Total GPA: 3.88 / 4.50 (3.69 / 4.00 U.S. scale)

Advisor: Prof. Lee, Hyunju, Prof. Yoo, Yung Joon

Thesis: Inferred AD pathology for RNA expression by deep neural network with pathway prior knowledge

Mar 2016 - Feb 2021

University of Copenhagen

Summer Session

Copenhagen, Denmark

July 2017

PUBLICATIONS

Journal Papers

1. **Kim, Y.**, Ojha, A., Schrader, A., Lee, J., Wu, Z., Traniello, I. M., Robinson, G. E., Han, H. S., Zhao, S. D., & Sinha, S. (2024). SpaceExpress: A method for comparative spatial transcriptomics based on intrinsic coordinate systems of tissues. *bioRxiv*. <https://doi.org/10.1101/2024.12.19.628720>
2. **Kim, Y.**, & Lee, H. (2023). PINNet: A deep neural network with pathway prior knowledge for Alzheimer's disease. *Frontiers in Aging Neuroscience*, 15, 1126156. <https://doi.org/10.3389/fnagi.2023.1126156>

Book Chapters

1. Wale, C., Nagabhatla, N., **Kim, Y.**, & Cottier-Cook, E. J. (2022). Trends and patterns of the seaweed industry and its links with SDGs. *Encyclopedia of the UN Sustainable Development Goals*, 1-17. doi:10.1007/978-3-319-71064-8_128-2

WORK EXPERIENCE

United Nations University Institute for Water, Environment and Health (UNU-INWEH)

Intern (Advisor: Dr. Nagabhatla, Nidhi)

Hamilton, Canada

Report: Sustainable development of seaweed industry - The South Korean context *Jan. 2019 - Mar. 2019*

- Diagnosed challenges that are faced in the seaweed industry; Focused on climate change and plastic contamination; Investigated best practices of South Korea

- Analyzed trade statistics on UN Comtrade databases
- Published results in the *Encyclopedia of the UN Sustainable Development Goals*

RESEARCH EXPERIENCE

Sinha Lab, Georgia Institute of Technology Atlanta, United States
Graduate Research Assistant (Advisor: Prof. Sinha, Saurabh) Sep. 2023 - PRESENT

Deep Learning Model for Spatial transcriptomics

- Developing SpaceExpress, the computational tool for rigorously testing spatial gene expression differences across samples, accounting for both discrete and quantitative traits
- Oral presentation in Atlanta Workshop on Single-cell OMics (AWSOM) 2024, poster presentation in CSHL Systems Biology 2024

Data Mining and Computational Biology Lab, GIST Gwangju, Republic of Korea
Graduate Research Assistant (Advisor: Prof. Lee, Hyunju) Mar. 2021 - May 2023

Protein-Compound Interaction Prediction

- Developed a interpretable graph-based deep learning model for protein-compound interaction
- Integrated different modalities and effectively utilized the protein structural information

Interpretable Deep Learning Model for Alzheimer's Disease

- Designed a pathway information-based neural network (PINNet) to predict AD patients in blood and brain transcriptomic datasets
- Investigated blood and brain transcriptomic signatures based on feature importance; Built models with PyTorch; Used R for statistical analysis

Undergraduate Research Assistant (Advisor: Prof. Lee, Hyunju) May 2019 - Feb. 2021

Alzheimer's disease biomarker discovery

- Investigated whole transcriptomic signatures that were common in AD brain and blood samples
- Constructed abstracted features using deep neural network with pathway prior knowledge
- Received undergraduate research award (EECS, GIST)

Applied & Environmental Microbiology Lab, GIST Gwangju, Republic of Korea
Undergraduate Research Assistant (Advisor: Prof. Hur, Hor-Gil) Jun. 2018 - Aug. 2018

- Investigated effects of water treatment processes on aquatic microbiology ecology.

HONORS AND AWARDS

CMaT Mentor Stipend Award	2024
Research Assistant Scholarship, GIST	2022
Government-Sponsored Scholarship, GIST	2021 - 2023
GIST Innovative Convergence Technology Contest, School of Integrated Technology, GIST	2020
1st Place on the Algorithm Track, Awarded by the Director of the Gwangju National Science Museum	
Outstanding Undergraduate Research Award, School of EECS, GIST	2019
Korea National Science and Engineering Scholarship	2018
A scholarship to fund full tuition from Korea Student Aid Foundation, Ministry of Education	
Academic Excellence Scholarship, GIST College	2016, 2017, 2018
Government-Sponsored Scholarship, GIST College	2016 - 2020
Scholarship for Summer Session Abroad, GIST College	Jul. 2017

COMPUTING TECHNICAL SKILLS

Programming Languages	Python, R, C/C++, bash
Deep Learning Frameworks	Pytorch, Tensorflow, Keras