

JaeHeon Lee

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Education

Korea Advanced Institute of Science and Technology (KAIST) B.S. in Biology Minor in AI (AI Special Designated Major) Minor in Electrical Engineering (NYU Minor Program in Electrical Engineering) GPA: 3.90 out of 4.30 / Major GPA: 4.01 out of 4.30	Spring 2019 – Present Daejeon, South Korea
New York University (NYU) Exchange Student (NYU Minor Program in Electrical Engineering)	Fall 2024 New York, NY

Awards & Scholarship

Korea-U.S. High-Tech Industry Scholarship	Fall 2024
Academic Excellence Scholarship (Top 3-4 in Department of Biological Sciences)	Spring 2024
Outstanding Tutor Award (Cell Biology and Biochemistry II)	Fall 2021
Undergraduate Research Program Grant	Fall 2021
KAIST Cho Jeong-Hun Academic Scholarship (Representative of KongjuNU High School)	Spring 2018

Research & Work Experience

Systems Neuro Lab, KAIST Advisor: Prof. Min Whan Jung • Conducted T-maze behavioral experiments with water-deprived rats and assisted with surgical procedures	December 2020 – February 2021
Brain x Machine Intelligence Lab, KAIST Advisor: Prof. Sang Wan Lee • Investigated spatiotemporal propagation of error signals in meta-reinforcement learning • Applied regression-based multi-voxel pattern analysis to decode neural patterns in fMRI data	June 2021 – December 2021
Deep Bio Inc. Korea's Industrial Technical Personnel Program (Alternative Military Service) • Focused on prognostic efficacy of AI products in prostate adenocarcinoma • Analyzed the morphology exhibited in various cancer types' histopathological images using deep learning • Developed various algorithms for image quantification and enhancing user convenience	March 2022 – February 2024
Computational Cognitive Neuroscience Lab, KAIST Advisor: Prof. Yul HR Kang • TreasureHunt2D: Developed web-based games, collected and analyzed data from human subjects performing click and ellipse-drawing tasks to test Bayesian models of how humans process uncertainty during multi-step decision making • Hairpin: Analyzed neural mechanisms of spatial navigation in hairpin maze by extending Bayesian Image-computable Observer for Navigation (BION) to capture probabilistic belief representations in grid cell populations • MapManifold: Conducted preliminary analysis of hippocampal cell recordings from VR navigation experiments with visual-motor mismatch	March 2024 – Present
Savin Lab, New York University Advisor: Prof. Cristina Savin • Investigating curriculum learning and neural dynamics reuse in sequential multi-task learning • Analyzing task compositionality in a stochastic recurrent neural circuit model	September 2024 – Present

Publications & Presentations

Publications

Curriculum Learning Promotes Decomposed and Reusable Neural Dynamics in Recurrent Networks (2025)
in preparation
JaeHeon Lee, David Hocker, Cristina Savin
Learning cognitive maps through combining noisy observations (2025)
in preparation
JaeHeon Lee, Jeongjae Park, Yul HR Kang

Multimodal beliefs captured by a population code during navigation (2025)
in preparation

JaeHeon Lee and collaborators (authors to be determined)

Poster Presentations

Learning cognitive maps through combining noisy observations (2025)

Korean Society for Cognitive and Biological Psychology (KSCBP)

JaeHeon Lee, Jeongjae Park, Yul HR Kang

Morphological feature discrepancies in wild-type vs. BRCA1/BRCA2 mutated high-grade serous ovarian cancer (2024)

American Association for Cancer Research (AACR)

JaeHeon Lee, Hyunil Kim, Yongeun Lee, Yoon-La Choi, Kyungsoo Jung, TaeYeong Kwak, Sun Woo Kim, Hyeyoon Chang

Spatiotemporal Propagation of Error Signals in Meta-Reinforcement Learning (2021)

KAIST Undergraduate Research Program (URP)

JaeHeon Lee, Yoondo Sung, Sang Wan Lee

Conference Abstracts

Deep learning-based histomorphological pattern profiles for effective risk stratification in prostate cancer (2023)

American Society of Clinical Oncology (ASCO)

JaeHeon Lee, Tae-Yeong Kwak, Joonyoung Cho, Sun Woo Kim, Hyeyoon Chang

Validation of AI-based postoperative nomograms for biochemical recurrence in prostate adenocarcinoma (2023)

American Society of Clinical Oncology (ASCO)

JaeHeon Lee, Tae-Yeong Kwak, Joonyoung Cho, Sun Woo Kim, Hyeyoon Chang

Exploring the efficacy of a continuous form of the histologic grade in prostate cancer prognosis prediction (2023)

American Society of Clinical Oncology (ASCO)

Tae-Yeong Kwak, **JaeHeon Lee**, Joonyoung Cho, Sun Woo Kim, Hyeyoon Chang

Algorithm-based histologic grade and tumor ratio for radical prostatectomy: Comparison with pathology reports (2023)

American Society of Clinical Oncology (ASCO)

Tae-Yeong Kwak, **JaeHeon Lee**, Joonyoung Cho, Sun Woo Kim, Hyeyoon Chang

Patents

Method for estimating tumor volume, and computing system performing the same (2024)

Korean Patent Office

Patent No. 10-2023-0067641 (Granted: December 3, 2024)

Method for generating representative lesion images of pathological diagnosis case, and computing system performing the same (2024)

Korean Patent Office

Patent No. 10-2024-0014784 (Granted: July 3, 2024)

Method for determining severity of disease using pathological image, method for determining slide-level severity of disease, and computing system performing the same (2023)

Korean Patent Office

Patent No. 10-2022-0067465 (Granted: January 2, 2023)

Languages

Korean (Native)

English (Fluent) - TOEFL iBT: 108/120

Chinese (Intermediate) - HSK Level 4

Activities & Leadership

Neuromatch Academy – NeuroAI 2024

Tutor Group in the Department of Biological Sciences 2021

Freshman Mentoring Group – Proctor 2021

Pretty Movie Club member 2020 – 2021

ICISTS (International Conference for the Integration of Science, Technology and Society) 2019 – 2020

Public Relations Team Head