

JaeHeon Lee

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Education

Korea Advanced Institute of Science and Technology (KAIST)	Spring 2019 – Present
B.S. in Biology	Daejeon, South Korea
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	
New York University (NYU)	Fall 2024
Exchange Student (NYU Minor Program in Electrical Engineering), GPA: 4.0 out of 4.0	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	December 2020 – February 2021
Advisor: Prof. Min Whan Jung	
<ul style="list-style-type: none">Conducted T-maze behavioral experiments with water-deprived rats and assisted with surgical procedures	
Brain x Machine Intelligence Lab, KAIST	June 2021 – December 2021
Advisor: Prof. Sang Wan Lee	
<ul style="list-style-type: none">Investigated spatiotemporal propagation of error signals in meta-reinforcement learningApplied regression-based multi-voxel pattern analysis to decode neural patterns in fMRI data	
Deep Bio Inc.	March 2022 – February 2024
Korea's Industrial Technical Personnel Program (Alternative Military Service)	
<ul style="list-style-type: none">Focused on prognostic efficacy of AI products in prostate adenocarcinomaAnalyzed the morphology exhibited in various cancer types' histopathological images using deep learningDeveloped various algorithms for image quantification and enhancing user convenience	
Computational Cognitive Neuroscience Lab, KAIST	March 2024 – Present
Advisor: Prof. Yul HR Kang	
<ul style="list-style-type: none">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 makingHairpin: 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 populationsMapManifold: Conducted preliminary analysis of hippocampal cell recordings from VR navigation experiments with visual-motor mismatch	
Savin Lab, New York University	September 2024 – Present
Advisor: Prof. Cristina Savin	
<ul style="list-style-type: none">Investigating curriculum learning and neural dynamics reuse in sequential multi-task learningAnalyzing task compositionality and multitask learning in a recurrent neural model	

Publications & Presentations

Publications

Mechanisms of skill transfer from pretraining to target task in recurrent neural networks (2025)
under review at ICLR 2026
JaeHeon Lee, David Hocker, Cristina Savin
Learning cognitive maps from noisy observations (2025)
preregistration in progress (OSF), manuscript 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