YOUNGHOON KIM

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EDUCATION

Seoul National University College of Medicine March 2017 - Feb 2021
M.D. (Doctor of Medicine) *Seoul, South Korea*

· Overall GPA: 3.71/4.3 (Cum Laude)

KAIST March 2013 - Feb 2017
B.S. in Bio and Brain Engineering *Daejeon, South Korea*

· Overall GPA: 4.20/4.3 (Summa Cum Laude)

· Dean's List (1st place in the deparment)

CLINICAL EXPERIENCE

Seoul National University Hospital March 2022 - Feb 2026
Residency, Department of Psychiatry *Seoul, South Korea*

Seoul National University Hospital March 2021 - Feb 2022
Medical Intern *Seoul, South Korea*

ADVANCED CLINICAL TRAINING

Psychoanalytic Psychotherapy for Residents March 2024 – Feb 2025
Korean Psychoanalytic Society (KPS)

· Completed training in foundational psychoanalytic psychotherapy approaches tailored for psychiatric residents, focusing on clinical applications and case conceptualization.

Advanced Treatment Program for Anxiety Disorders June 2022 – Dec 2022
Korean Academy of Anxiety Disorders

· Completed a structured program focused on in-depth treatment approaches for anxiety disorders.

AWARDS AND HONORS

KAIST Graduation Ceremony 2017
Prize by the President of the General Alumni Association (4th place among all undergraduates)

18th Samsung Human-Tech Paper Award 2012
Silver Award, among 1,462 applicants *$5000 Prize, $2000*8/semester scholarship*

PUBLICATIONS

[1] Y. H. Kim, J. Jang, N. Kang, J. H. Jeong, J. Kim, Y. M. Ahn, Y. S. Kim, S. H. Kim. "Revealing differential psychotic symptoms in schizophrenia and bipolar I disorder by manifold learning and network analyses". *Translational Psychiatry* 15.1 (2025), pp. 1–10.

[2] K. S. Lee, T. Lee, M. Kim, E. Ignatova, H.-J. Ban, M. K. Sung, Y. H. Kim, Y. J. Kim, J. H. Han, J. K. Choi. "Shared rare genetic variants in multiplex autism families suggest a social memory gene under selection". *Scientific Reports* 15.1 (2025), p. 696.

[3] Y. C. Lyoo, S. Park, S. Ju, K. S. Shin, J. Hwang, S. Yoon, J. Kim, H. B. Cho, Y. H. Kim, J. H. Kim. "A performance comparison between the two language versions of the Affective Go/No-Go test: A randomised crossover study". *International Journal of Psychology* 53 (2018), pp. 81–88.

CONFERENCES

[1] Y. H. Kim, H. Joo, S. W. Lee. "Optimal Markov decision tasks for simulating human reinforcement learning". *Reinforcement Learning and Decision Making (RLDM)*. Poster Presentation. 2025.

RESEARCH EXPERIENCE

KAIST Brain & Machine Intelligence Lab Dec 2017 - Feb 2026
Internship *Daejeon, South Korea*

- Analyzed fMRI data obtained from participants while playing a two step Markov decision task, using multi-voxel pattern analysis tool
- Currently working on optimization of Markov decision task in human reinforcement learning. Concepts used in the project includes environment parameterization, genetic algorithm.

Seoul National University Radiology Physics Lab Oct 2018 - Dec 2018
Student Intern *Seoul, South Korea*

- Created a semantic segmentation model based on U-net to automatically draw contours of the bladder, rectum and prostate from CT images
- Combined different neural net modules (i.e. boundary refinement modules) to the original U-net structure to develop a novel neural net model
- Learned how to evaluate the quality of segmentation with a clinical aspect: original metrics such as jaccard similarity does not solely represent the quality of segmentation when it serves as a contour for radiation therapy planning

KAIST OMICS Lab June 2015 - Jan 2017
Student Intern *Daejeon, South Korea*

- Learned genome sequencing and analysis workflow using bowtie, tophat and cufflinks
- Analyzed Single Nucleotide Polymorphism (SNP), confirming the fact that SNPs from patients with autism are mapped in an enriching manner in a novel gene

Massachusetts General Hospital Bouma's Lab June 2016 - Aug 2016
HST-MGH Internship *Boston, USA*

- Created the workflow to make mesoscale connectivity map from a 3D image of a mouse brain, obtained from a technology called CAST (optical coherence tomography imaging of a transparent brain by using CLARITY)

Ewha Brain Institute Jan 2014 - Feb 2016
Student Intern *Seoul, South Korea*

- Learned fundamental physics of MRI, and different types of imaging techniques including T1, T2 enhanced images, proton density, FLAIR, and diffusion tensor imaging
- Learned how to design cognitive tasks (i.e. how to set inter-stimuli intervals) and to scientifically discuss and interpret results

TECHNICAL SKILLS

Languages Python, R, MATLAB
Tools PyTorch

RESEARCH OF INTERESTS

- I study how humans learn and make decisions, and how we can use computational models to better understand both the healthy and disordered mind. By combining neuroscience and machine learning, I explore the principles that make biological learning systems flexible, efficient, and adaptive—especially the ways our brains simplify and prioritize information in complex environments.
- I plan to apply these ideas to psychiatry, building models that simulate how different mental disorders might emerge from disrupted learning or decision-making processes. My goal is to use these models to generate insights that are both scientifically rigorous and clinically meaningful, helping to bridge the gap between abstract theories of the mind and real-world mental health care.