

Jun Young Park

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Last Update: Nov. 6, 2023

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EDUCATION

Ph.D. <i>Graduate School of Public Health Sciences</i> Seoul National University <ul style="list-style-type: none">• Biostatistics• Advisor: Prof. Sungho Won (won1@snu.ac.kr)	Sep. 2020 – Aug. 2023 Seoul, South Korea
Mater Degree <i>Graduate School of Public Health Sciences</i> Seoul National University	Mar. 2017 – Feb. 2020 Seoul, South Korea
B.S. <i>Sociology / Mathematical Statistics</i> Seoul National University	Mar. 2009 – Feb. 2016 Seoul, South Korea

WORK EXPERIENCE

Stanford University <i>Department of Neurology and Neurological Sciences</i> Post Doctoral Fellow	Nov. 2023 – Present California, USA
Neurozen Inc. Senior Researcher <ul style="list-style-type: none">• Development of solutions for predicting early biomarkers of Alzheimer's Disease with deep learning• Main Researches (<i>Products</i>)<ul style="list-style-type: none">* Predicting $A\beta$ accumulation using MR imaging and genetics (<i>NeuroAI</i> (Clinical Test Phase III approval))* Automating Rey Complex Figure Test scoring using a deep learning-based approach (<i>MemoAI</i>)	Feb. 2020 – Oct. 2023 Seoul, South Korea
DOAI Inc. Researcher <ul style="list-style-type: none">• Development of Medical AI solutions with deep learning• Main Researches<ul style="list-style-type: none">* Optimizing lead via deep reinforcement learning for drug discovery* Predicting ovarian cancer regions in whole sliding images	Dec. 2018 – Jan. 2020 Gyeonggi, South Korea
Samsung Life Insurance Staff <ul style="list-style-type: none">• Product Development• Estimating the occurrence of risk with statistical model and calculating insurance premiums	Jan. 2016 – Aug. 2017 Seoul, South Korea

PUBLICATIONS

• Journal Publications

[S6] [Park, J.Y.](#), Lee, J. J., Lee, Y., Lee, D., Gim, J., Farrer, L., Lee, K. H.*, Won, S.*, "Machine learning-based quantification for disease uncertainty increases the statistical power of genetic association studies". **Bioinformatics**, 2023. [Link](#).

[S5] Choi, U.[†], [Park, J.Y.](#)[†], Lee, J.J., Choi, K.Y., Won, S., Lee, K. H.* "Predicting mild cognitive impairments from cognitively normal brains using a novel brain age estimation model based on structural magnetic resonance imaging". **Cereb Cortex**, 2023. [Link](#).

[S4] [Park, J.Y.](#)[†], Seo, E.[†], Yoon, H.-J., Won, S.*, Lee, K. H.* "Automating Rey Complex Figure Test scoring using a deep learning-based approach: A potential large-scale screening tool for cognitive decline". **Alz Res Therapy**, 2023.

SCI, IF: 8.823, [Link](#).

[S3] Lee, Y., **Park, J.Y.**, Won, S.*, Lee, K. H.* et al. "Heritability of cognitive abilities and regional brain structures in middle-aged to elderly East Asians". *Cereb Cortex*, 2023.

SCI, IF: 4.027, [Link](#).

[S2] Seo, E.H.[†], Lim, H.J.[†], **Park, J.Y.**, Kim, B.C.*, Lee, K. H.* et al. "Visuospatial memory impairment as a potential neurocognitive marker to predict tau pathology in Alzheimer's continuum". *Alz Res Therapy* 13, 167, 2021.

SCI, IF: 8.823, [Link](#).

[S1] **Park, J.Y.**, Won, S.*, Lee, K. H.* et al. "A missense variant in *SHARPIN* mediates Alzheimer's disease-specific brain damages". *Transl Psychiatry* 11, 590, 2021.

SCI, IF: 7.989, [Link](#).

• Journals under Preparation

[JU3] **Park, J.Y.**, Lee, K. H.*, Won, S.* et al. "Multi-stream deep learning model for predicting mild cognitive impairment using RCFT images".

[JU2] **Park, J.Y.**, Lee, K. H.*, Won, S.* et al. "Genome-wide association studies for Rey Complex Figure Test with longitudinal data".

[JU1] **Park, J.Y.**, Kim, B., Lee, K. H.* "Predicting Amyloid-beta with MR imaging and Genetics for Mild Cognitive Impairment".

RESEARCH EXPERIENCE (SELECTED)

Deep Learning model development for predicting early-stage of AD with RCFT images Dec. 2022 – Oct.2023
deep learning, medical images

- developed multi-stream network deep learning model to predict mild cognitive impairment.
- preparing a first-author paper for submission.

Machine Learning model development for predicting brain age with T1-MRI Oct. 2021 – Dec. 2022
machine learning, medical images

- developed machine-learning models to predict brain age with MRI features
- submitted a first-author paper.

Deep Learning model development for automated RCFT scoring May. 2021 – Aug. 2022
deep learning, medical images

- developed deep learning model to predict scores for Rey Complex Figure Tests

Deep Learning model development for predicting A β accumulation Feb. 2020 – May. 2022
deep learning, medical images, genetics

- developed deep learning model to predict amyloid-beta accumulation using MR imaging and genetics.
- approved Clinical Test Phase III in Ministry of Food and Drug Safety.

Deep Learning model development for predicting cancer regions with WSI Jan. 2019 – Dec. 2019
deep learning, medical images

- developed deep learning model to predict ovarian cancer region with whole sliding images.

Statistical analysis for GWAS with RCFT Jan. 2023 – present
GWAS, longitudinal data, medical images

- conducted GWAS with longitudinal data.
- preparing a first-author paper for submission.

Statistical method development for GWAS with T1-MRI data Oct. 2019 – Jan. 2023
machine learning, GWAS, simulation

- developed machine-learning models to predict AD with MRI data
- validated the proposed method with simulation studies
- submitted a first-author paper.

Statistical analysis for AD GWAS with T1-MRI Mar. 2019 – Aug. 2021
GWAS, medical images

- analyzed MRI and genetic data and conducted genome-wide association studies.
- published a first-author paper.

RESEARCH INTERESTS

- **Biostatistics**
- **Machine Learning**
- **Deep Learning**
- **Genetics**
- **Medical Imaging**
- **Alzheimer's Disease**

INVITED TALKS

"Effective application of AI-based biomarkers for prediagnosis of Alzheimer's Disease"
Neuroscience Forum on Alzheimer's Disease (NFAD), Neurozen Inc.

Feb. 2022
Jeju, South Korea

PATENT

Park, J.Y, Park, J.S. "Apparatus and Method for Predicting Amyloid Beta Deposition".
(Korea - Application No. 1024563380000).

Park, J.Y, Lee, G.H, Park, J.S. "Method for Obtaining Score for Neuropsychological Test and Neuropsychological Test Device".
(Korea - Application No. 1024092420000).

Park, J.Y, Lee, G.H, Park, J.S, Seo, E.H. "Device and Method For Predicting Cognitive Impairment Using Spatiotemporal Memory Test and Brain Image Information".
(Korea - Application No. 1023830580000).

SKILLS

Programming: Python (Tensorflow, Pytorch, scikit-learn), R, SAS, MySQL

Modeling: Machine Learning, Deep Neural Networks, Convolutional Neural Networks, Autoencoder, Reinforcement Learning, Genetic analysis tools

Platform: MacOS, Linux, Docker, Kubernetes

REFERENCES

Michael D. Greicius

Professor, Stanford University

- Postdoc fellow Advisor
- greicius@stanford.edu

Sungho Won

Professor, Seoul National University

- Ph.D. Advisor
- won1@snu.ac.kr