# Taehyo Kim

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**Research Focus** **DL / AI in Healthcare, High-Dimensional Statistics, Multi-Modal Representation Learning**


**Contact Information**
1411 31st Avenue
Astoria, New York 11106
tk2737@nyu.edu


**Education**

**New York University**, New York, NY
Ph.D. in Biostatistics — Expected January 2027
- Dissertation: *Modern Statistical Machine Learning Approaches for Alzheimer's Disease Research*
- Advisor: Dr. Hai Shu

M.S. in Computer Science — June 2022
- Capstone: *An Apple Watch application for anxiety attack monitoring and detection* [Code]

**University of Toronto**, Toronto, ON
B.A.Sc in Computer Engineering, minor in Biomedical Engineering — June 2020

**Honors and Awards**

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| Runner-up Student Paper Award, ASA Statistics in Imaging Section | 2024 |
| DataFest Finalist, Eastern North American Region of the International Biometric Society | 2024 |
| Student Travel Award, American Statistical Association | 2024 |
| PhD Fellowship Award, New York University | 2022 |
| Certificate for Artificial Intelligence Engineering, University of Toronto | 2020 |
| International Summer Research Award, University of Toronto | 2019 |
| Gold Award, The Duke of Edinburgh's Award | 2015 |

**Skills**

**Programming:** Python, R, C++, C, C#, Java, MATLAB, Shell
**Frameworks:** PyTorch, TensorFlow, Keras, OpenCV, Git, Spark, Hadoop, Numba, JAX
**Machine Learning:** GLM, PCA, CCA, Random Forest, MLP, CNN, U-Net, W-Net, Transformers, Masked Autoencoders, Video Vision Transformers, Diffusion Models, Self-Supervised Learning

**Professional Experience**

**Graduate Student Researcher** — 2020 - present
Hai Shu Lab — New York, NY
- Developed statistical machine learning methods for high-dimensional biomedical data for use in multiple hypothesis testing, sparse canonical correlation analysis, and survival modeling.

**Graduate Student Researcher** — 2024 - present
Biofeedback Intervention Technology for Speech Lab, NYU Steinhardt — New York, NY
- Applied self-supervised learning (ViViT-based BYOL, VideoMAE) to identify articulatory differences in clinically inaccurate /r/ pronunciations in children with speech sound disorders.

**Statistical Fellow** — Summer 2024
Biostatistical Collaboration and Consultation Core, NYU GPH — New York, NY
- Prepared statistical analysis plans for clients and conducted statistical data analyses to support manuscript development.

**Undergraduate Research Assistant** — Summer 2020
Multimedia Laboratory, UofT — Toronto, ON
- Applied deep learning to classify histological tissue types and co-authored a large-scale survey on computational pathology analyzing over 800 papers.

**Software Developer Intern** Summer 2019
N.1 Institute for Health Kent Ridge, Singapore
- Wrote MATLAB functions to automate cleaning and quality checks for a 76TB neural dataset.

**Software Developer Intern** May 2018 - May 2019
Epson Markham, ON
- Released the Android and Windows Software Development Kit (SDK) designed for augmented reality smart-glasses, using Alpha and unit testing standards.

## PUBLICATIONS

**Kim, T.**, Jia, Q., de Leon, M. J., Shu, H. (2025). A False Discovery Rate Control Method Using a Fully Connected Hidden Markov Random Field for Neuroimaging Data. arXiv preprint arXiv:2505.20688. Under Review at *Medical Image Analysis*. [Paper] [Code]

**Kim, T.**, Shu, H., Jia, Q., de Leon, M. J. (2024). DeepFDR: A Deep Learning-based False Discovery Rate Control Method for Neuroimaging Data. Proceedings of Machine Learning Research, 238, 946–954. [Paper] [Code]

Tang, T., Chen, Y., **Kim, T.**, Shu, H. (2024). UKAN-EP: Enhancing U-KAN with Efficient Attention and Pyramid Aggregation for 3D Multi-Modal MRI Brain Tumor Segmentation. arXiv preprint arXiv:2408.00273. Under Review at *BMC Medical Imaging*. [Paper] [Code]

Hosseini, M. S., Bejnordi, B. E., Trinh, V. Q., Chan, L., Hasan, D., Li, X., Yang, S., **Kim, T.**, Zhang, H., Wu, T., Chinniah, K., Maghsoudlou, S., Zhang, R., Zhu, J., Khaki, S., Buin, A., Chaji, F., Salehi, A., Nguyen, B. N., Samaras, D., ... , Plataniotis, K. N. (2024). Computational Pathology: A Survey Review and the Way Forward. Journal of Pathology Informatics, 15, 100357. [Paper]

## MANUSCRIPTS IN PREPARATION

**Kim, T.**, Shu, H. L0-IPLS: An L0 Penalized Sparse Canonical Correlation Analysis Method with Application to High-Dimensional Imaging-Omics Data.

Chen, Y.*, **Kim, T.***, Chen, Z., Patippe, C. Causal Determinants of Blood Pressure Control among US Adults with Hypertension: A Data-Driven Causal Graphical Learning, NHANES 2013 to 2023

Lai, A., **Kim, T.**, Dahlen, A., Lomas, T. A Global Understanding of Work Enjoyment and Human Wellbeing.

Eads, A., Benway, N., **Kim, T.**, McFee, B., Preston, J., Shu, H., McAllister, T. Enhancing AI-based Speech Therapy through Acoustic to Articulatory Mapping.

Chen, Y., **Kim, T.**, Shu, H., Feng Y. Transfer-guided Conditional Score-based Diffusion Network for Replenishment Sampling Imputation.

Kim, H., Cardoso, D. d. M., Kayahara, G. M., **Kim, T.**, Shu, H., Bernabé, D. G., Ye, Y. Pre-treatment pain phenotypes and their association with disease progression and post-treatment pain in head and neck cancer.

## TALKS AND PRESENTATIONS

"A Global Understanding of Work Enjoyment and Human Wellbeing"
Poster, Joint Statistical Meetings, Portland, OR August 2025

"Causal Determinants of Blood Pressure Control among US Adults with Hypertension: A Data Driven Causal Graphical Learning, NHANES 2013 to 2023"
Poster, ENAR Spring Meeting, New Orleans, LA March 2025

"DeepFDR: A Deep Learning-based False Discovery Rate Control Method for Neuroimaging Data"

Oral, Joint Statistical Meetings, Portland, OR — August 2024

"DeepFDR: A Deep Learning-based False Discovery Rate Control Method for Neuroimaging Data"
Poster, International Conference in Artificial Intelligence and Statistics, Valencia, Spain — May 2024

"Enhancing AI-based Speech Therapy through Acoustic to Articulatory Mapping"
Poster, AI Research Symposium: Bridging AI Innovation and Societal Impact
New York, NY — April 2024

"Machine Learning-driven Risk Factor Identification on Post-2013 Blood Pressure Control Decline in Hypertensive Populations"
Oral, ENAR Spring Meeting, Baltimore, MD — March 2024

## Teaching Experience

**Teaching Assistant**, New York University, New York, NY

Applied Bayesian Analysis in Public Health (GPH-GU 2272/3372) — Fall 2024
Applied Survival Analysis (GPH-GU 2368/3368) — Spring 2024
Statistical Inference (GPH-GU 3225) — Fall 2023

**Graduate Student Mentor**, New York University, New York, NY

Pathways into Quantitative Aging Research Summer Program — Summer 2024
Pathways into Quantitative Aging Research Summer Program — Summer 2022