Weifeng (Ellery) Yu

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Education

University of Virginia — Charlottesville, VA
Master in Computer Science; GPA: 3.77/4.00 — *2023 – 2025*

Kean University, Wenzhou — Wenzhou, China | Union, NJ
B.S. in Computer Science; GPA: 3.55/4.00 (Cum Laude) — *2019 – 2023*

Research Interest

Computational Neuroimaging: brain network analysis, multimodal MRI and behavioral data integration, brain-behavior modeling, and biomarker identification.

Deep learning for brain science: graph neural networks (GNNs), self-supervised and foundation models, multimodal fusion, representation learning, and interpretable machine learning.

Publication List

[1] Solomon, A.*, **Yu, W.***, Rasero, J., & Zhang, A. (2026). *Altered Hierarchical Ranking of Intrinsic Neural Timescales in School-Aged Youth with Autism Spectrum Disorder*. Submitted to *Molecular Autism*. (*equal contribution)

[2] **Yu, W.**, Qu, G., Kim, Y. G., Xu, L., & Zhang, A. (2025). *A novel GNN framework integrating neuroimaging and behavioral information to understand adolescent psychiatric disorders*. In *Proceedings of the 8th International Conference on Medical Imaging with Deep Learning (MIDL 2025)*.

[3] Solomon, A., **Yu, W.**, Rasero, J., & Zhang, A. (2025). *Altered hierarchical rank in intrinsic neural timescales in autism spectrum disorder*. In *SPIE Medical Imaging 2025: Clinical and Biomedical Imaging* (Vol. 13410, pp. 157–163).

[4] Wang, Y., Xiong, C., **Yu, W.**, Zhou, M., Shugg, T. A., Hsu, F. C., Eadon, M. T., Su, J., & Song, Q. (2024). *PCCA variant rs16957301 is a novel AKI risk genotype-specific for patients who receive ICI treatment: Real-world evidence from All of Us cohort. European Journal of Cancer, 213*, 115114. doi:10.1016/j.ejca.2024.115114.

[5] Krishnamoorthy, S., **Yu, W.**, Jin, L., & Kadry, S. (2023). *AO-HRCNN: Archimedes Optimization and Hybrid Region-Based Convolutional Neural Network for Detection and Classification of Diabetic Retinopathy. Artificial Intelligence Review, 56*(Suppl 1), 483–511. doi:10.1007/s10462-022-10452-6.

[6] Krishnamoorthy, S., Zhang, Y., Kadry, S., & **Yu, W.** (2022). *Framework to segment and evaluate multiple sclerosis lesion in MRI slices using VGG-UNet. Computational Intelligence and Neuroscience*, 2022, Article ID 4928096. doi:10.1155/2022/4928096.

Research Experience

Neurobioinformatics Lab, University of Virginia — Charlottesville, VA
Research Assistant, mentored by Prof. Aiying Zhang — *April 2024 – Present*

- Developed and evaluated a GNN-based framework integrating fMRI neuroimaging with behavioral measures under supervised and unsupervised paradigms; preliminary findings accepted at *MIDL 2025*.
- Built an intrinsic neural timescale (INT)–based analysis pipeline on ACE and ABIDE; preliminary results accepted at *SPIE Medical Imaging 2025*.
- Implemented trial-wise beta estimation workflows (LSS/LSA) and beta-series correlation (BSC) pipelines for task fMRI (SST, MID), enabling robust analyses of task-evoked functional connectivity.
- Managed datasets containing Controlled Unclassified Information (CUI), ensuring rigorous curation, role-based access control, and NIST SP 800-171–aligned handling in coordination with UVA Research Computing.
- Designed, built, and maintain the lab website; organize and host the lab's biweekly journal club.

Song Lab, University of Florida — Remote
Research Volunteer, mentored by Prof. Qianqian Song — *Jan 2024 – May 2024*

- Contributed to a genome-wide association study meta-analysis on immune-related adverse events (irAEs).
- Curated and organized drug treatment datasets across multiple cancer types for downstream analyses.
- Collaborated with lab members on preliminary analysis and interpretation of genetic data.

Institute of Societal Contemporary Computing, Wenzhou-Kean University — Wenzhou, China
Research Assistant, mentored by Prof. Sujatha Krishnamoorthy — *Sep 2021 – Jun 2023*

- Led a student team in developing AI/ML-driven methods for assessing Parkinson's disease based on written tasks, voice patterns, and gait analysis.
- Compiled a survey on state-of-the-art methods for Parkinson's disease diagnostics across behavioral perspectives.
- Organized and optimized code provided by collaborators for a diabetic retinopathy detection project, submitting detailed reports to the advisor.

Internship Experience

Zhuanzhuan Spirit Tech Co. Ltd. Beijing, China
Software Development Engineer, supervised by Mr.Yuan Wang *Dec 2021 – Feb 2022*

- Developed an information management system using Spring Framework, improving data processing efficiency and scalability.
- Contributed to the development and troubleshooting of the Phone Detection "One Line" system, enhancing its accuracy.
- Prepared and delivered weekly reports during team meetings, documenting progress and ensuring transparency.
- Managed communication with the product manager, recording discussions to align technical development with product goals.

Teaching Experience

Teaching Assistant, Computer Programming : Wenzhou-Kean University, Spring 2022.

Teaching Assistant, Microcomputer Applications : Wenzhou-Kean University, Fall 2022 & Spring 2023.

Research Grant Support

UVA Brain Institute 2024 Transformative Neuroscience Pilot Grants (PI: Dr. Sequeira and Zhang)
Investigating anxiety-related variability in brain structure-function coupling during adolescence.
Role: Data Management Technician

R01AG082228 (MPIs: Dr. Gibson, Flowers and Zhang)
Mechanistic links between the benefits of pharmacologically high thiamine (vitamin B1) in Alzheimer's disease to Advanced Glycation Endproducts (AGE).
Role: Statistical Analyst

Mentoring Experience

Aroosha Solomon, *B.A. Biology, Distinguished Majors Program (DMP), University of Virginia* *Jun 2024 – Present*

Amy Chang, *B.A. Human Biology (DMP), University of Virginia* *Oct 2024 – May 2025*

Junkai Zhang, *PhD Student at University of Illinois at Chicago* *Sep 2024 - May 2025*

Mackenzie Bullock, *Undergraduate Student at University of Virginia* *Nov 2024 - May 2025*

Chloe Wang, *Undergraduate Student at University of Virginia* *Feb 2025 - May 2025*

Presentations

Invited Seminar: *Integrating Multimodal Imaging and Non-Imaging Data via Graph Learning.* **Yu, W.** VALIANT Deeper Dive Seminar Series, VALIANT Lab, Vanderbilt University, March 17, 2026.

Poster Presentation: *BEG-GAE: A Novel GNN Framework Integrating Neuroimaging and Behavioral Information to Understand Adolescent Psychiatric Disorders.* Medical Imaging with Deep Learning (MIDL 2025), Salt Lake City, UT, July 10, 2025.

Oral Presentation: *Introduction to GCN and GraphSAGE: Foundations of Graph-Based Learning.* NeuroBioinformatics Lab Seminar, University of Virginia, June 28, 2024.

Oral Presentation: *Subtype-Specific Alterations in Structure–Function Coupling in Pediatric Anxiety Disorders.* Sequeira, S.L.; **Yu, E.**; Mutu, D.; Zhang, A. Society for Biological Psychiatry (SOBP) Annual Meeting, New York, NY, April 2026.

Skills

Languages: Python, Java, HTML5, LaTeX, R, SQL
Tools: PyTorch, DGL, Docker, FSL, fMRIprep, Nilearn, FreeSurfer, Connectome Workbench, METAL