**Department of
Biomedical Engineering**
UNIVERSITY OF WISCONSIN–MADISON

Celebrating 25 Years

**Spring 2025
Seminar Series**

Integrative -omics for improved understanding and detection of Alzheimer's disease

Jingwen Yan, PhD
Associate Professor and Director of Bioinformatics
Luddy School of Informatics, Computing and Engineering
Indiana University Indianapolis

Integrative -omics is an emerging research field that aims to extract the knowledge from the broad multi-omic data landscape. While multiple domains included, such as brain imaging, genetics, transcriptomics and proteomics, it offers great promise to illuminate the causal pathway from genotype to phenotype and to provide optimal molecular phenotypes for early therapeutic intervention. Building on the extensive mult-omics and brain imaging datasets, we focus on the development and application of AI models and bioinformatics approaches aimed at 1) exploring the functional mechanisms linked to Alzheimer risk variants (i.e., functional genomics) and 2) modeling disease progression to improve early detection and risk assessment. In this talk, I will introduce some of our recent work on exploration of AD molecular mechanisms and early detection with integrative -omics approaches.
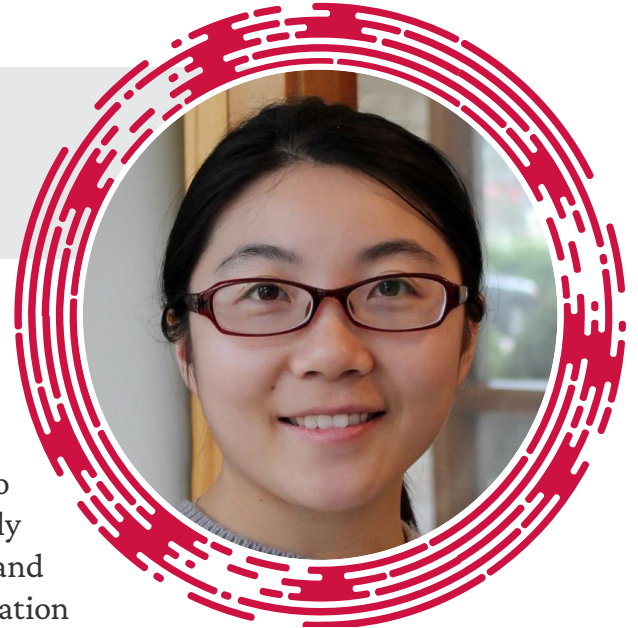
ABOUT the SPEAKER

Dr. Jingwen Yan is an Associate Professor and director of Bioinformatics at Luddy School of Informatics, Computing and Engineering at Indiana University Indianapolis. Her research is focused on developing computational and bioinformatics approaches for integrative analysis of high throughput multi-omic genetic data, multi-modal neuroimaging data and rich biological knowledge (e.g., pathways and networks), with applications to Alzheimer's disease and other neurodegenerative disorders. In particular, these approaches have been largely dedicated to the discovery of disease biomarkers with better interpretability and understanding of disease progression to facilitate the early detection. Her lab stands in between biomedical and AI research community, performing highly interdisciplinary research from computational modeling to investigation of specific disease problems. Her work has obtained funding support from both NIH and NSF. In addition, Dr. Yan is part of several national computational efforts to address Alzheimer's disease, like AI4AD, clear-AD and ADMC.

Tuesday, January 21 at Noon
2180 Mechanical Engineering Building