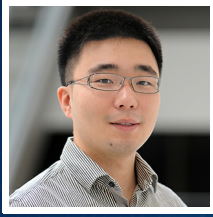# Computers in Drug Development

Zhandong Liu
Assistant Professor, Center for Integrated Biomedical Research

CURRENT RESEARCH

Building analytic tools to facilitate research in neurodegenerative diseases and therapeutics

Some patients with Alzheimer's or Huntington's diseases show symptoms early in their lives, while some others do not show symptoms until later. This difference is caused by their genetic background, and identifying these genetic modifiers provide potential drug targets whose pathways researchers hope to efficiently block. Dr. Zhandong Liu, Assistant Professor at the Center for Integrated Biomedical Research at Baylor College of Medicine, is working on drug development based on genetic modifiers that naturally occur in our body, using not only fly and mouse models but also mathematics and computer science. As genetic modifier screening is very labor-intensive and therefore expensive, Dr. Liu collaborates with top-notch neuroscientists and clinicians to build graphic models integrating multiple data types that will help advance the understanding of neurological diseases and find therapeutic targets for neurodegenerative diseases, namely Alzheimer's and Huntington's.

The internal collaboration between computer scientists, neuroscientists, and experimentalists within the Center facilitates effective research, encouraging feedback between researchers across disciplines inside a single, physical building. Therefore, computer scientists are able to see the experiments and understand how data is achieved, and tune their algorithms to handle the data. Here, Dr. Liu develops computational analytic tools using modern machine learning to help understand the complicated interactions of genes. Trained in both computational and biological sciences, Dr. Liu focuses on topics including genomics, transcription regulation, disease genes prioritization, and machine learning, and often examines problems in these areas using...

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AFFILIATION

Baylor College of Medicine

EDUCATION

- Ph.D. in Genomics & Computational Biology 2010, University of Pennsylvania
- M.S. in Computer Science 2004, Wayne State University
- B.S. in Computer Science 2001, Nankai University

AWARDS

- Research grant award on Statistical Methods for Integrated Analysis of High-Throughput Biomedical Data", 2011
- Era of Hope Ph.D fellowship, 2008
- Motorola Scholarship for Outstanding undergraduates, 2001

RESEARCH AREAS

Life Science, Genomics / Congenital, Neurological / Cognitive, Oncology / Cancer

FUNDING REQUEST

Your contributions will support the continued research of Dr. Zhandong Liu at the Baylor College of Medicine as he develops computational models to find therapeutic targets for neurodegenerative diseases like Alzheimer's and Huntington's disease. Donations will help fund the $150K required for each project, supporting students, postdoctoral fellows, and other talented researchers. Partner with Dr. Liu to investigate genetic modifiers responsible for neurological diseases!