

Zhengxu Tang

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EDUCATION

University of Michigan

Bachelor of Science in Mathematical Science & Computer Science

Expected May 2025

Course Highlights: Computational Neuroscience, Mathematical Models, Bioinformatics Concepts and Algorithms, High Throughput Molecular Genomic and Epigenomic Data Analysis, Introduction to Theoretical Statistics

RESEARCH EXPERIENCE

University of Michigan, College of Engineering, Biomedical AI Lab

Undergraduate Researcher

July 2023 - Present

Collaborated with [Dr. Liyue Shen](#) on multimodal biomedical learning, precision health, and AI for science research.

- Combined various modalities of medical data to construct a multimodal biomedical model with more than two modalities, enhancing the model's predictive capabilities and contributing to the field of precision medicine.
- Attempted to integrate neural symbolic systems into multimodal medical models, reducing model hallucinations and enhancing model robustness.

University of Michigan, College of LSA, Math Department

Undergraduate Researcher

July 2023 - Present

Collaborated with [Dr. Daniel Forger](#) and [Dr. Ruby Kim](#) on Mathematical biology research.

- Integrated PK/PD models of ADHD medication with mathematical models of dopamine in mammals, and linked these to genes associated with dopamine transporters, enhancing the understanding of the disease's pathophysiology.

Michigan State University, Institute for Quantitative Health Science & Engineering, Li lab

Undergraduate Researcher

May 2021 - Aug 2023

Collaborated with [Dr. Jinxing Li](#) on Soft robots, medical imaging, soft bio-electronics, and brain-computer interfaces research.

- Developed a novel flexible and stretchable magnetically-driven actuator, enabling the creation of the most flexible bio-compatible robots to date.
- Employed cyclic voltammetry for the analysis of serotonin and dopamine levels in sweat, and utilized an autoencoder for data processing, resulting in the development of the current state-of-the-art model.
- By integrating the strengths of both CT and MPI imaging technologies, achieved high-precision tracking of micro robots, significantly enhancing the accuracy and reliability of robotic navigation in the mice brain.

Michigan State University, College of Engineering, Data Science and Engineering Lab

Assistant Researcher

May 2023 - Aug 2023

- - Collaborated on a project utilizing graph neural networks for comprehensive spatial transcriptomics data analysis.

PUBLICATION

Under Review

- Zhengxu Tang*, Yunnuo Zhang*, Abdallah Daha, Vittorio Mottini, Liuxi Xing, and Jinxing Li. **Soft Magnetic Actuator for Stretchable, Bio-compatible, Underwater Soft Robots**. in IEEE International Conference on Robotics and Automation (ICRA)

In Preparation

- Zhengxu Tang*, Chenwei Wu*, and Liyue Shen. **Bridging Genomics and Pathology through Multimodal Deep Learning: A Pathway to Versatile Pretrained Models**
- Kevin Mozel*, Zhengxu Tang*, Tengtang Tang, Vittorio Mottini, Patnala Venkateshiva, Rao Fu, Xiang Chen, XiangJia Li, and Jinxing Li. **Imaging and Tracking Microrobots In Vivo and In Vitro: A Unique Approach Using Magnetic Particle Imaging and Computed Tomography**

LEADERSHIP EXPERIENCE

Ongather Online Study Association

Co-founder

Nov 2020 - May 2021

- - Founded and scaled the association to unite 400+ Chinese international students, fostering community and collaboration during the pandemic.

SKILLS

Programming Language: Python, C, C++, MATLAB, SQL, R

Software: Fusion 360, ANSYS, Solidworks, Arduino