# Zeyu Yang

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## RESEARCH INTERESTS

Large Scale Machine Learning; Generative Modeling

## EDUCATION

**Rice University**                                                                      August 2024 – Present
Ph.D. in Electrical and Computer Engineering

**Rice University**                                                                      August 2021 – May 2023
M.S. in Data Science, GPA: 3.79/4.00

**University of Electronic Science and Technology of China**              August 2017 – May 2021
B.E. in Electronic Information Engineering, GPA: 3.66/4.00

## SKILLS & CERTIFICATES

**Programming:**

- *Data Science:* C++, CUDA, Python (PyTorch, Hugging Face, Matplotlib), MATLAB, Tableau
- *Web Development:* Python (Django, Dash), HTML, CSS, JavaScript (React), PostgreSQL
- *IT Skills:* Git, AWS, Docker, Linux, Markdown, LaTeX

**Coursera Certificates:**

- Back-End Developer Professional Certificate offered by Meta
- Front-End Developer Professional Certificate offered by Meta
- Database Engineer Professional Certificate offered by Meta

## RESEARCH EXPERIENCE

**Rice Rush Lab**                                                                        December 2024 – Present
*Graduate Research Assistant*, with Professor Anshumali Shrivastava

- Developed a 4-bit tunable quantization framework for text-to-image diffusion transformers.

**Rice Computational Wellbeing Group**                                     January 2024 – July 2024
*Graduate Student Researcher*, with Professor Akane Sano

- Developed a fair diffusion model to generate balanced mixed-type tabular data conditioned on multiple labels [1].
- Created a self-supervised multimodal learning method for stress detection using time series and tabular data [4].

**Rice Computer Graphics/Geometric Design Group**                  May 2022 – August 2022
*Graduate Student Researcher*, with Professor Joe Warren

- Designed lecture notes and Python programming assignments that cover the principles of neural networks.
- Developed a Python toolbox for animating the training progress of multi-layer perceptrons [5].

**Monash Data Futures Institute**                                            December 2020 – March 2021
*Undergraduate Student Researcher*, with Professor Hao Wang

- Developed an asynchronous distributed alternating direction method of multipliers (ADMM) algorithm to optimize energy trading problems under asynchronous communication, allowing communication delay and indicating a potential for better outcomes in real-world applications [3].

## PUBLICATIONS

*Journal Publications:*

1. **Zeyu Yang**, Han Yu, Peikun Guo, Khadija Zanna, Xiaoxue Yang, Akane Sano, "Balanced Mixed-Type Tabular Data Synthesis with Diffusion Models", *Transactions on Machine Learning Research (TMLR)*, 2025.

*Conference Publications:*

2. Yizhuo Yang, Huan Wang, Zhiliang Liu, **Zeyu Yang**, "Few-Shot Learning for Rolling Bearing Fault Diagnosis via Siamese Two-Dimensional Convolutional Neural Network", in *Asia-Pacific International Symposium on Advanced Reliability and Maintenance Modeling*, 2020.

*Preprints:*

3. **Zeyu Yang**, Hao Wang, "Network-Aware Asynchronous Distributed ADMM Algorithm for Peer-to-Peer Energy Trading", *arXiv:2312.06976*, 2023.

*Working Papers:*

4. **Zeyu Yang**, Han Yu, Akane Sano, "Contrastive Pretraining for Stress Detection with Multimodal Wearable Sensor Data and Surveys", submitted to *Conference on Health, Inference, and Learning (CHIL)*, 2025.

*Published Software:*

5. *PlotNet.* (2022). [Online]. Available: https://github.com/zeyuyang8/plotnet

## AWARDS & HONORS

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|---|---|
| Outstanding Undergraduate Student Award | 2021 |
| Meritorious Winner of Interdisciplinary Contest in Modeling | 2020 |

## TEACHING EXPERIENCE

**Data Visualization (COMP 665)** at Rice University,     Spring 2022 – Spring 2023
*Teaching Assistant*, with Professor Joe Warren

**Statistics for Data Science (COMP 680)** at Rice University,     Spring 2023
*Academic Tutor*, with Professor Chen Su

**Introduction to Data Science (DSCI 101)** at Rice University,     Fall 2024
*Teaching Assistant*, with Professor Lorenzo Luzi

## COURSEWORK

**Graduate Coursework:**

- *Computer Science:* Programming for Data Science, Big Data Management for Data Science, Data Visualization, Graduate Design and Analysis of Algorithms
- *Machine Learning:* Statistical Machine Learning, Deep Learning for Vision and Language, Applied Machine Learning and Data Science Projects, AI for Health, Advanced Machine Learning, Learning from Sensor Data
- *Statistics & Optimization:* Statistics for Data Science, Convex Optimization, Information Theory

**Undergraduate Coursework:**

- *Computer Science:* Introductory C Programming, Introductory Python Programming
- *Electrical Engineering:* Application and Design of Digital Logic, Signals and Systems, Digital Communication, Microelectronic Systems, Circuit Analysis and Design, Fundamentals of Analog Circuits
- *Math & Physics:* Linear Algebra and Space Analytic Geometry, Probability Theory and Mathematical Statistics, Calculus I, Calculus II, Physics I, Physics II