

# Xingyue Yang

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## EDUCATION

### The University of Texas at Dallas

Department of Mechanical Engineering

Ph.D. Student GPA: 3.83/4.0

Texas, United States

Aug. 2024 – Present

### University of California, Santa Barbara

Department of Electrical and Computer Engineering

College Exchange Program, Visiting student GPA: 3.57/4.0

California, United States

Sep. 2023 – Jun. 2024

### Huazhong University of Science and Technology (HUST)

School of Automation and Artificial Intelligence

Bachelor of Engineering in Automation GPA: 3.52/4.0

Hubei, China

Sep. 2020 – Jun. 2024

## PUBLICATIONS & PATENTS

### Article:

- X. Yang, Y. Liu, & Y. Xu (2025). A Comprehensive Comparison of Time-Series Models for Battery Health Diagnostics and Prognostics. 2025 IISE Annual Conference & Expo.
- Ru, H., W. Gao, W. Ou, X. Yang, A. Li, Z. Fu, J. Huo, B. Yang, Y. Zhang, X. Xiao, Z. Yang & J. Huang (2023). A Flexible Wearable Supernumerary Robotic Limb for Chronic Stroke Patients. Journal of Visualized Experiments, 200, e65917.

**Patent:** Pneumatic Actuator Control Method via Gradient Descent and Neural Networking [China Z1WH23092958].

## RESEARCH EXPERIENCE

### Machine learning in battery health monitoring and prediction

*Advised by Prof. Yanwen Xu at The University of Texas at Dallas.*

Aug. 2024 – Present

- Developed a dual-horizon time-series framework for battery state-of-health prediction, embedding statistical features extracted from the CC-CV charging curve as auxiliary features, resulting in a 20% improvement in prediction accuracy. The paper was accepted to the 2025 IISE Annual Conference & Expo and presented as an oral talk.
- Developed a multi-fidelity framework with physics-informed learning, greatly reducing dependence on high-fidelity data; currently preparing a journal manuscript for submission to Structural and Multidisciplinary Optimization.
- Developed a comprehensive code structure for model training and testing, including visualizations, for regression, prediction, and transfer learning tasks, while identifying potential enhancements to further improve prediction accuracy.
- Currently focusing on novel physics-integrated battery degradation models, exploring techniques such as control-infused machine learning, transfer and meta-learning, and dual-direction learning.

### Optimization of microgrid droop control based on renewable energy

*Independent Summer Research, advised by Prof. Hua, Geng at Tsinghua Univ.*

Jul. 2023 – Aug. 2023

- Gained in-depth knowledge of power grids, renewable energy sources, and microgrid droop control strategies.
- Conducted simulations and analyses on grid stability, optimizing DC microgrid structures with multiple energy sources.
- Optimized DC microgrid structures driven by four types of sources, considering different dynamic behaviors.

### Closed-loop Vector Control of PMSM Based on STM32 Embedded Platform

*Cooperative Research Project, at HUST*

Mar. 2023 – Jun. 2023

- Designed and implemented a closed-loop FOC system for PMSM on STM32, integrating PI controllers, Clarke/Park transforms, and sensor-less speed estimation with observer and PLL.
- Developed Simulink models for system simulation and validated embedded C code on hardware, coordinating ADC, PWM, and DMA modules to achieve real-time speed control and robust performance.

## COURSEWORK & SKILLS

- Control Systems & Modeling (Courses & Labs): Control Theory & Integrated Laboratory, Control Technology Experiment & Course Design, System Modeling, Intelligent/Process Control, System Integration & Optimization.
- Power & Motion Hardware: Sensor Technology; Power Electronics & Motion Control System.
- Optimization & Advanced Control Theory: Principles of Optimization, Optimal Control & Dynamic Programming.
- Programming & Platforms: MATLAB/Simulink, Python, C/C++, Arduino, NI (LabVIEW), AutoCAD, STM32.
- Applied Skills: Control-system design, system-dynamics modeling, motor control, sensor technology, machine/deep learning (PyTorch), optimization & data-science toolchain.