

# **Peihao Xiang**

Graduate Research Assistant, *HCPS Lab*, FIU  
10555 West Flagler St. EC 3860 Miami, FL 33174  
Tel.: +1 786-328-1116 E-mail: pxiang@fiu.edu

## **Education Background**

<b>Tianjin University of Commerce Boustead College</b>	<i>Tianjin, China</i>
Major: Computer Science and Technology	09/2015-06/2019
Degree: Bachelor of Engineering	
<b>Florida International University</b>	<i>Miami, FL, US</i>
Major: Computer Engineering	08/2021-12/2022
Degree: Master of Science	
<b>Florida International University</b>	<i>Miami, FL, US</i>
Major: Electrical and Computer Engineering	01/2023-06/2026*
Degree: Doctor of Philosophy	

## **Research Interests**

- Computer Vision
- Embedded System
- Multimodal LLM
- Deep Learning
- Model Compression

## **Work Experience**

### **China Automotive Technology & Research Center Co. Ltd (CATARC)**

Title: Network Engineer (Intern) | Date: September 2018 - March 2019

- Responsible for network maintenance and H3C switch processing configuration.
- Research driverless technology and Intelligent network vehicle simulation experiment.
- Embedded chip algorithm programming to optimize the optimal path.

### **Tianxinyi Intelligent Network Technology (Tianjin) Co. Ltd**

Title: Algorithm Engineer | Date: July 2020 – April 2021

- Responsible for STM43F107 vehicle network video surveillance system.
- Research based on Computer Vision port container number recognition system.
- Responsible for the spreader monitoring system solution.

### **Nanjing Micro Nano Technology Research Institute Co. Ltd**

Title: Algorithm Engineer | Date: May 2021 – August 2021

- Responsible for 3D visual-haptic human-computer interaction fusion algorithm.
- Research image process technology and Deep Learning algorithm.
- Development of embedded system upper computer software based on ARM chip.

### **Florida International University, Human Cyber-Physical Systems Laboratory**

Title: Graduate Research/Teaching Assistant | Date: January 2023 – June 2026\*

- Research and implement wearable exoskeleton robotic arms.
- Research AI-Agent feedback system in Parent-Child Interaction Therapy (PCIT).
- Research AI-Powered wearable multimodal multi-task Large Language Model (LLM).

## Publications

- [1] Entropy Reveals Block Importance in Masked Self-Supervised Vision Transformers  
**Peihao Xiang**, Kaida Wu, Ou Bai  
Submitted to 2026 43rd International Conference on Machine Learning (ICML)
- [2] Load Estimation for Industrial Load-lifting Exoskeletons Using Insole Pressure Sensors and Machine Learning  
Kaida Wu, **Peihao Xiang**, Chaohao Lin and Ou Bai  
Submitted to 2026 7th IEEE International Conference on Artificial Intelligence, Robotics, and Control (AIRC)
- [3] Label Ranker: Self-aware Preference for Classification Label Position in Visual Masked Self-supervised Pre-trained Model  
**Peihao Xiang**, Ou Bai  
2025 ACM International Conference on Multimedia Retrieval (ICMR)
- [4] MTCAE-DFER: Multi-Task Cascaded Autoencoder for Dynamic Facial Expression Recognition  
**Peihao Xiang**, Kaida Wu, Ou Bai  
2025 IEEE International Joint Conference on Biometrics (IJCB)
- [5] CLL-RetICL: Contrastive Linguistic Label Retrieval-based In-Context Learning for Text Classification via Large Language Models  
Chaohao Lin, Kaida Wu, **Peihao Xiang**, Yanzhao Wu, Ou Bai  
2025 14th International Joint Conference on Natural Language Processing and the 4th Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics (IJCNLP-AACL)
- [6] Human Intention Detection for Upper-Limb Assistive Exoskeletons Using a Motor's Built-in Current Sensor  
Kaida Wu, **Peihao Xiang**, Chaohao Lin, Daniel Picado, Lixuan Chen, Ou Bai  
2025 3rd IEEE International Conference on Artificial Intelligence and Automation Control (AIAC)
- [7] Emotion Styles Hide in Deep Speaker Embeddings: Disentangle Deep Speaker Embeddings for Speaker Clustering  
Chaohao Lin, Xu Zheng, Kaida Wu, **Peihao Xiang**, Ou Bai  
Submitted to 2025 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2025)  
2025 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)
- [8] MultiMAE-DER: Multimodal Masked Autoencoder for Dynamic Emotion Recognition  
**Peihao Xiang**, Chaohao Lin, Kaida Wu, Ou Bai  
2024 14th IEEE International Conference on Pattern Recognition Systems (ICPRS)
- [9] Assessment of a Modular Upper-Limb Exoskeleton with Powered Assistance  
Kaida Wu, **Peihao Xiang**, Rodrigo Ramon, Aparna Aravelli, Leonel Lagos, Ou Bai  
2023 2nd IEEE International Conference on Automation, Robotics and Computer Engineering (ICARCE)

## **Patents**

[1] Interaction Method, Device, Apparatus, Medium and Program Product

Yuan Wang, **Peihao Xiang**, Lei Huang

Publication date: 2023/5/12

Patent number: CN 116107417 A

Application number: 202111327835.4

[2] Visual and Tactile Feedback System

Yuan Wang, **Peihao Xiang**, Lei Huang

Publication date: 2023/5/9

Patent number: CN 116088671 A

Application number: 202111312751 .3

[3] Visual-Tactile Feedback System

Yuan Wang, **Peihao Xiang**, Lei Huang

Publication date: 2022/3/15

Patent Number: CN 216052966 U

Application number: 202122723460 .5

[4] Industrial Synchronous Pulse Fiber Optic Transceiver Server

Yalei Yin, **Peihao Xiang**, Haipeng Liang

Publication date: 2021/10/26

Patent Number: CN 214507078 U

Application number: 202120572811 .4

## **Research Projects**

### **Design and Implementation of ARM Intelligent Vehicle Control System**

- Based on the incremental PID control algorithm and graph theory algorithm, the ARM intelligent car control system is designed and implemented.

### **Designing and Improving Spreader Monitoring System**

- Set up the test platform of spreader monitoring system, test the performance of spreader monitoring system, and complete the project function of IP mapping.

### **Design and Development of Container Terminal Box Identification System**

- Based on image processing algorithm and Deep Learning algorithm, the container number recognition system is designed and implemented.

### **Design and Implementation of Vehicle Video Processing Software**

- Based on STM32 series development chip, the webpage programming software is designed and implemented to calculate and process the vehicle video stream.

### **Design and Development of 3D Visual-Haptic Human-Computer Interaction System**

- Based on 3D image visual processing technology and multi-dimensional spatial coordinate fusion algorithm, a new human-computer interaction system with 3D visual-haptic is designed.

### **Design of Admittance Control Algorithm for Exoskeleton Manipulator**

- Based on impedance-admittance control, the force sensor is used as the input source for analysis, and a control algorithm for the exoskeleton robotic arm is designed.

### **Design and Development of AI Embedded System for Multimodal Behavior Analysis**

- Use deep learning technology to perform behavioral analysis on multiple modalities such as video, audio, and text to develop AI embedded systems.

## **Teaching**

### **Florida Internation University**

#### **Spring 2025**

- EGN 1002: Engineering Orientation
- EEL 2880: C Programming for Embedded Systems
- CNT 4155: Python Programming in ECE
- TCN 4081: Telecommunication Network Security
- TCN 4211: Telecommunication Networks

#### **Summer 2025**

- EEL 3657: Control Systems I
- EEE 4752: Introduction to Network Forensics and Incident Response

#### **Fall 2025**

- TCN 4211: Telecommunication Networks
- EEE 4752: Introduction to Network Forensics and Incident Response
- EEL 4802: Introduction to Digital Forensics Engineering

#### **Spring 2026**

- EEL 3135: Signals and Systems
- EEL 4802: Introduction to Digital Forensics Engineering
- EEE 4752: Introduction to Network Forensics and Incident Response
- TCN 4211: Telecommunication Networks

## **Professional Activities**

### **Program Committee**

- [1] The 12th International Conference on Information Management and Big Data (SIMBig 2025)
- [2] The 20th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2026)
- [3] The 16th ACM International Conference on Multimedia Retrieval (ICMR 2026)

### **Conference Reviewer**

- [1] 2025 International Joint Conference on Neural Networks (IJCNN 2025)
- [2] The 19th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2025) 2nd Workshop on Interdisciplinary Applications of Biometrics and Identity Science
- [3] The 15th ACM International Conference on Multimedia Retrieval (ICMR 2025)
- [4] The 3rd International Conference on Artificial Intelligence, Computer, Data Sciences and Applications (ACDSA 2026)
- [5] The 6th International Conference on Electrical, Computer and Energy Technologies (ICECET 2026)
- [6] 2026 International Joint Conference on Neural Networks (IJCNN 2026)
- [7] Forty-Third International Conference on Machine Learning (ICML 2026)

## **Leadership Activities**

<b>Student Union</b>	09/2015-06/2018
• Organize various activities as a member of the Learning Department.	
• Guide various activities as head of the Department of Public Information.	
• Dealing with internal affairs as Vice President of Student Union.	
<b>Project Leader of MicroMouse Competition of Tianjin</b>	11/2017-12/2017
• Design the optimal path through graph theory algorithm to complete programming.	
<b>China Undergraduate Mathematical Contest in Modeling</b>	09/2017
• Responsible for problem analysis and solution.	
<b>National Undergraduate Electronics Design Contest</b>	07/2017-08/2017
• Design of Visible Light Indoor Positioning Device as project leader.	
<b>Internet Innovation and Entrepreneurship Competition</b>	05/2016-05/2017
• Design the application software of College Students' part-time service as project leader.	

## **Awards and Honors**

• Outstanding Undergraduate Thesis (TUCBC)	July 2019
• Outstanding Graduate Award (TUCBC)	June 2019
• Outstanding Student Award (Tianjin)	November 2018
• The 2nd Prize for 1st College Student Innovation and Entrepreneurship Competition	June 2017
• Outstanding Award for College Programming Competition	May 2017
• The 2nd Prize for 4th "CATCH" National College Student Internet Software Design Competition	March 2016