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

Tianjin University of Commerce Boustead College *Tianjin, China*
Major: Computer Science and Technology 09/2015-06/2019
Degree: Bachelor of Engineering

Florida International University *Miami, FL, US*
Major: Computer Engineering 08/2021-12/2022
Degree: Master of Science

Florida International University *Miami, FL, US*
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, Robo -tics, and Control (AIRC)

[3] Label Ranker: Self-aware Preference for Classification Label Position in Visual Mask -ed Self-supervised Pre-trained Model
Peihao Xiang, Ou Bai
2025 ACM International Conference on Multimedia Retrieval (ICMR)

[4] 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)

[5] 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)

[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 Embe-ddings for Speaker Clustering
Chaohao Lin, Xu Zheng, Kaida Wu, **Peihao Xiang**, Ou Bai
2025 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)

[8] MultiMAE-DER: Multimodal Masked Autoencoder for Dynamic Emotion Recognit-ion
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

Student Union 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.

Project Leader of MicroMouse Competition of Tianjin 11/2017-12/2017

- Design the optimal path through graph theory algorithm to complete programming.

China Undergraduate Mathematical Contest in Modeling 09/2017

- Responsible for problem analysis and solution.

National Undergraduate Electronics Design Contest 07/2017-08/2017

- Design of Visible Light Indoor Positioning Device as project leader.

Internet Innovation and Entrepreneurship Competition 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