Yiran Pang

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Education

Florida Atlantic University, *Ph.D. Candidate in Computer Science*, *GPA: 4.0 / 4.0* Sept 2022 – August 2027

- **Advisor:** Prof. Zhen Ni and Prof. Xiangnan Zhong
- **Research focus:** Federated Learning for non-IID multi-domain settings; Federated RL under heterogeneous environment; LLM robustness and evaluation.
- **Internship Availability:** Seeking a 2026 PhD internship (CPT eligible). Interests include building reliable LLM systems in production settings: agentic workflows, RAG, fine-tuning and data-centric iteration. Also interested in multimodal/computer vision problems.

Skills

LLM Systems	Parameter-efficient fine-tuning (PEFT, LoRA); Agentic workflows (tool-use, planning, self-correction); RAG pipelines (retrieval, reranking, grounding, citation-aware generation); prompt design
Multimodal / CV	Computer vision and multimodal learning; representation learning; robustness under domain shift
RL	Policy optimization and evaluation; multi-task learning
Federated Learning	Non-IID learning; personalization; client heterogeneity; multi-domain/multi-task aggregation
Programming	Python, C/C++, SQL; clean experiment code and production-minded prototypes
Frameworks	PyTorch, Tensorflow, JAX; common ML tooling for training/evaluation
Systems	Linux, Git, Docker; HPC/Slurm workflows; experiment automation and scaling

Publications

Large Language Models & NLP

- **Y. Pang**, Y. Zhao, Z. Zhou, T. Hu, and R. Hou, "Is OpenVLA Truly Robust? A Systematic Evaluation of Positional Robustness," in *Proc. IJCNLP–AACL*, 2025.
- Z. Wang, **Y. Pang**, Y. Lin, and X. Zhu, "Adaptable and reliable text classification using large language models," in *Proc. IEEE ICDMW*, pp. 67–74, 2024.
- Z. Wang, **Y. Pang**, and Y. Lin, "Large language models are zero-shot text classifiers," *arXiv preprint* arXiv:2312.01044, 2023.

Federated Learning & Multi-Domain CV

- **Y. Pang**, Z. Ni, and X. Zhong, "Decoupling Shared and Personalized Knowledge: A Dual-Branch Federated Learning Framework for Multi-Domain with Non-IID Data," *AAAI Conference on Artificial Intelligence (AAAI-26)*, accepted.
- **Y. Pang**, Z. Ni, and X. Zhong, "Federated learning for crowd counting in smart surveillance systems," *IEEE Internet of Things Journal*, vol. 11, no. 3, pp. 5200–5209, 2023.

Federated Reinforcement Learning

- **Y. Pang**, Z. Ni, and X. Zhong, "A fast federated reinforcement learning approach with phased weight-adjustment technique," *Neurocomputing*, vol. 626, p. 129550, 2025.
- **Y. Pang**, Z. Ni, and X. Zhong, "Personalized Observation Normalization for Federated Reinforcement Learning in Simulation Environments with Heterogeneity," in *Proc. IEEE International Joint Conference on Neural Networks (IJCNN)*, 2025.
- **Y. Pang**, Z. Ni, and X. Zhong, "Integration of a new layer normalization process into federated reinforcement learning for environments with heterogeneous attribute spaces," in *Proc. SPIE Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications VII*, vol. 13473, pp. 246–253, 2025.

Computer Vision & Edge AI

- X. Min, W. Zhou, R. Hu, Y. Wu, **Y. Pang**, and J. Yi, "Lwuavdet: A lightweight UAV object detection network on edge devices," *IEEE Internet of Things Journal*, vol. 11, no. 13, pp. 24013–24023, 2024.

- W. Zhou, F. Zheng, Y. Zhao, **Y. Pang**, and J. Yi, "MSDCNN: A multiscale dilated convolution neural network for fine-grained 3D shape classification," *Neural Networks*, vol. 172, p. 106141, 2024.
- Z. Wang, **Y. Pang**, C. Ulus, and X. Zhu, "Counting manatee aggregations using deep neural networks and Anisotropic Gaussian Kernel," *Scientific Reports*, vol. 13, no. 1, p. 19793, 2023.
- J. Yi, **Y. Pang**, W. Zhou, M. Zhao, and F. Zheng, "A perspective-embedded scale-selection network for crowd counting in public transportation," *IEEE Transactions on Intelligent Transportation Systems*, vol. 25, no. 5, pp. 3420–3432, 2023.
- W. Zhou, X. Min, Y. Zhao, **Y. Pang**, and J. Yi, "A multi-scale spatio-temporal network for violence behavior detection," *IEEE Transactions on Biometrics, Behavior, and Identity Science*, vol. 5, no. 2, pp. 266–276, 2023.
- W. Zhou, F. Zheng, G. Yin, **Y. Pang**, and J. Yi, "Yolotrashcan: A deep learning marine debris detection network," *IEEE Transactions on Instrumentation and Measurement*, vol. 72, pp. 1–12, 2022.
- Y. Wang, W. Zhong, H. Su, F. Zheng, **Y. Pang**, H. Wen, and K. Cai, "An improved MVCNN for 3D shape recognition," in *Proc. IEEE ICESIT*, pp. 469–472, 2021.

▷ Submitted / Under Preparation:

- **Y. Pang**, et al., "P2Maze: A Protocol-Paired Sim-to-Real Dataset for Zero-shot and Few-shot Mobile Robot Maze Navigation," under review, 2026.
- **Y. Pang**, et al., "Federated Multi-Task Reinforcement Learning with Group-Aware Client Updating Strategies," under preparation.

Projects

Wearable Soft Magnetic Sensor Arrays for Robust Force Myogram (FMG) Recognition in Prosthetic Hand Control 2025 – Present

- **Problem:** FMG recognition performance degrades under sensor displacement and subject variability in daily wear, limiting real-world reliability.
- **Solution:** Built an end-to-end real-time pipeline (sensing → feature learning → classification) using soft magnetic sensor arrays; developed robustness-oriented learning and evaluation protocols across wearing positions and users.
- **Impact:** Improved position robustness and generalization across subjects; enabled deployment-ready inference workflow for stable real-time control signals.

Intelligent Data Analysis and Decision System for Construction Sites 2022

- **Problem:** Manual safety inspection does not scale to multi-camera construction sites requiring continuous monitoring and timely alerts.
- **Solution:** Implemented real-time safety compliance detection (unsafe behaviors / warning signs) with YOLO-based models; designed server-side scheduling and parallel inference APIs for multi-stream processing.
- **Impact:** Delivered an end-to-end monitoring service with alerting and record keeping; improved operational efficiency for safety supervision.

Anti-Forgery Code Identification System for Cigarette Packaging (Edge Deployment) 2021

- **Problem:** Robustly reading laser codes on transparent/reflective packaging under edge/mobile constraints.
- **Solution:** Developed a CRNN-based recognition model and integrated detection + recognition into an end-to-end pipeline; migrated PyTorch models to ONNX and deployed with NCNN (C++ runtime).
- **Impact:** Achieved efficient on-device inference; integrated C++ and Java via JNI for Android app delivery and WeChat mini program integration.

Selected Engineering Projects

- **Traditional Chinese Medicine Pieces Recognition (2021):** Built a ResNet-based classifier and data cleaning/augmentation workflow; improved accuracy from 79% to 96.9%; deployed as a lightweight service for mobile access.
- **Tourism Safety Monitoring System (2019):** Enhanced SlowFast-based violence recognition and optimized crowd counting for surveillance streams; enabled real-time abnormal behavior detection and alerting for high-risk scenes.

Experience

Fushan Glass Art Company, *Software Engineer* June – Sept 2019

- Implemented inventory/production modules for ERP backend (MySQL) with stored procedures and indexing for consistency and performance.
- Designed normalized schemas for inventory + production workflows; supported reporting queries and auditability.
- Reduced slow queries by redesigning indices and query patterns (profiling-driven).

Awards and honors

- Best Journal Publication, FAU College of Engineering & Computer Science (2024)
- Academic Achievement Award, FAU COECS (2023–2025)
- National Mathematical Contest in Modeling, 2nd Prize (2021)