XIANGYU YIN

PHD CANDIDATE

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RESEARCH INTERESTS

AI in Healthcare, Mobile Sensing, AI Applications, AIoT, Robotics.

EXPERIENCE

2019 - Present	**Graduate Student Researcher / Teaching Assistant** Intelligent System Lab, Department of Electrical & Computer Engineering University of Pittsburgh, Pittsburgh, PA, USA • Developing vision-based AI applications to ease prosthesis alignment for individuals with disabilities. • Collaborated with pulmonologists at UPMC Children's Hospital of Pittsburgh and developed smartphone-based acoustic sensing systems and machine learning tools for evaluating pulmonary diseases (COPD, asthma, etc.). • Provided technical support across multiple projects, focusing on the implementation and deployment of machine learning models (especially LLMs) and enhancing their usability, explainability, and efficiency.
2018 - 2019	**Research Assistant** Department of Automation University of Science and Technology of China (USTC), Hefei, China • Developed hardware-in-the-loop (HIL) simulation tools for testing UAV flight control system.

EDUCATION

Present	**Ph.D. in Electrical & Computer Engineering** University of Pittsburgh, Pittsburgh, PA, USA Supervised by Dr. Wei Gao
June 2019	**B.Eng. in Automation** University of Science and Technology of China (USTC), Hefei, China Enrolled in the *Talent Program in Information Science and Technology* Graduated from the *School of the Gifted Young*

PUBLICATIONS

1. **[ICCV'25] Yin, X.**, Yang, B., Liu, W., Xue, Q., Alamri, A., Fiedler, G., & Gao, W. (2025). ProGait: A Multi-Purpose Video Dataset and Benchmark for Transfemoral Prosthesis Users. *arXiv preprint arXiv:2507.10223*. https://doi.org/10.48550/arXiv.2507.10223

2. **[MobiSys'25]** Wang, H., Yang, B., **Yin, X.**, & Gao, W. (2025). Never Start from Scratch: Expediting On-Device LLM Personalization via Explainable Model Selection. https://doi.org/10.48550/arXiv.2504.13938

3. **[arXiv]** Song, J., Huang, K., **Yin, X.**, Yang, B., & Gao, W. (2024). Achieving Sparse Activation in Small Language Models. *arXiv preprint arXiv:2406.06562*. https://doi.org/10.48550/arXiv.2406.06562

4. **[CVPR'25]** Xue, Q., **Yin, X.**, Yang, B., & Gao, W. (2025). Phyt2v: Llm-guided iterative self-refinement for physics-grounded text-to-video generation. In *Proceedings of the Computer Vision and Pattern Recognition Conference* (pp. 18826-18836). https://doi.org/10.48550/arXiv.2412.00596

5. **[MobiCom'25]** Huang, K.*, **Yin, X*.**, Huang, H., & Gao, W. (2025). Modality plug-and-play: Runtime modality adaptation in LLM-driven autonomous mobile systems. In *ACM MobiCom*. https://sites.pitt.edu/~weigao/publications/mobicom25_mpnp.pdf

6. **[MobiCom'24]** Huang, K., **Yin, X.**, Gu, T., & Gao, W. (2024). Perceptual-Centric Image Super-Resolution using Heterogeneous Processors on Mobile Devices. In *Proceedings of the 30th Annual International Conference on Mobile Computing and Networking* (pp. 1361-1376). https://doi.org/10.1145/3636534.3690698

7. **[MobiSys'23] Yin, X.**, Huang, K., Forno, E., Chen, W., Huang, H., & Gao, W. (2023). PTEase: Objective Airway Examination for Pulmonary Telemedicine using Commodity Smartphones. In *Proceedings of the 21st Annual International Conference on Mobile Systems, Applications and Services* (pp. 110-123). https://doi.org/10.1145/3581791.3596854

8. **[CML-IOT'22/SenSys'22] Yin, X.**, Huang, K., Forno, E., Chen, W., Huang, H., & Gao, W. (2022). Out-Clinic Pulmonary Disease Evaluation via Acoustic Sensing and Multi-Task Learning on Commodity Smartphones. In *Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems* (pp. 1182-1188). https://doi.org/10.1145/3560905.3568437 (**Best Paper Award**)

* Equal contribution

PROFESSIONAL ACTIVITIES

Presentations:

- "Perceptual-Centric Image Super-Resolution using Heterogeneous Processors on Mobile Devices", The 30th Annual International Conference on Mobile Computing and Networking (MobiCom'24), Washington, D.C., November 2024
- "Smartphone-Based Acoustic Waveform Airway and Respiratory Examination", ATS 2023 International Conference, Washington, D.C., May 2023 (Poster)
- "Out-Clinic Pulmonary Disease Evaluation via Acoustic Sensing and Multi-Task Learning on Commodity Smartphones", The Fourth Workshop on Continual and Multimodal Learning for Internet of Things (CML-IOT'22), Co-Located with SenSys 2022, Boston, MA, November 2022
- "Acoustic Waveform Respiratory Evaluation (AWARE)", i4Kids Symposium, UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA, June 2022
- "Neural Network Memoization for Scalable Edge Inference", Elijah Meeting, Dept. of Computer Science, Carnegie Mellon University, Pittsburgh, PA, March 2022

Conference Reviewer:

- 2023 IEEE/ACM international conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE'23)
- 2023 IEEE International Conference on Communications (ICC'23) E-health Track
- 2023 IEEE International Conference on Computer Communications (INFOCOM'23)
- The 19th IEEE International Conference on Mobile Ad-Hoc and Smart Systems (MASS'22)

SKILLS & ABILITIES

Programming Skills: MATLAB, C/C++, Python, Java, JavaScript, HTML, SQL, LaTeX

Software & Tools: MATLAB, PyTorch, Keil, Autodesk Fusion, UltiMaker Cura

Hardware Platforms: Android, STM32, Raspberry Pi, Nvidia Jetson

HONORS & AWARDS

| November 2024 | **Student Travel Grant**
 ACM MobiCom'24 |
| December 2017 | **Bronze Prize of Scholarship for Outstanding Students in USTC**
 University of Science and Technology of China (USTC) |

November 2024   **Student Travel Grant**
                       ACM MobiCom'24

November 2022   **Best Paper Award**
                       ACM CML-IOT'22

December 2017   **Bronze Prize of Scholarship for Outstanding Students in USTC**
                       University of Science and Technology of China (USTC)

August 2017   **National Second Prize / Provincial First Prize**
                       National Undergraduate Electronic Design Contest

December 2016   **Seagate Scholarship of USTC**
                       University of Science and Technology of China (USTC)