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# Haoming Wang

334 N Craig, Pittsburgh, PA, USA | haw200@pitt.edu | 412-909-7571 |

**Homepage**: haomingwang645.github.io | Linkedin | Google Scholar

## Research Interests

**On-device AI, Efficient Generative AI, Spatial Intelligence, Explainable AI**

## Education

**Ph.D. in Electrical and Computer Engineering**, University of Pittsburgh — Sept 2022 – May 2027 (Anticipated)

Advisor: Prof. Wei Gao

**B.Eng. in Automation**, Zhejiang University — Sept 2018 – May 2022

with Honors from Chu Kochen Honors College
GPA: 3.8/4

## Experience

**Graduate Student Researcher / Research Assistant** , Intelligent System Lab, Dept. of Electrical & Computer Engineering, University of Pittsburgh, — Sept 2022 – Present

- **(2025 May - Now)** Enhanced VLM spatial reasoning by generating customizable 3D test scenes via LLM-based optimization and enabling on-device cross-frame reasoning by constructing unified semantic maps. (two papers under review)
- **(2024 Nov - 2025 May)** Developed methods for efficient and explainable on-device AI, including expediting LLM personalization via model selection and enhancing the explainability of image generation models.
- **(2022 Sept - 2024 Oct)** Designed novel Federated Learning frameworks to address intertwined data heterogeneity and device staleness, using techniques like gradient inversion to compensate for update delays.

**Teaching Assistant**, Department of Electrical and Computer Engineering ,University of Pittsburgh, — Sept 2024 – Now

- ECE 1175 - Embedded System Design (Fall 2024)
- ECE 1195 - Advanced Digital Design (Spring 2025)
- ECE 1396 - Introduction to Machine Learning (Fall 2025)

**Research Assistant**, Department of Control Science and Technology, Zhejiang University — Sept 2020 – Jun 2022

- Signal design and processing for near-ultrosonic acoustic senesing systems on smartphones

## Publications

**[AAAI'25] Tackling Intertwined Data and Device Heterogeneities in Federated Learning with Unlimited Staleness** — 2025

***Haoming Wang***, Wei Gao

in Proceedings of the 39th Annual Conference on Artificial Intelligence, 2025. (Acceptance Ratio: 23.4%)
[Paper] / [arXiv]

**[MobiCom'25] When Device Delays Meet Data Heterogeneity in Federated AIoT Applications** — 2025

***Haoming Wang***, Wei Gao

in Proceedings of the 31st ACM International Conference on Mobile Computing and Networking. (Acceptance Ratio: 17.1%)
[Paper]

**[MobiSys'25] Never Start from Scratch: Expediting On-Device LLM Personalization via Explainable Model Selection** — 2025

***Haoming Wang***, Boyuan Yang, Xiangyu yin, Wei Gao

In Proceedings of the 23rd Annual International Conference on Mobile Systems, Applications and Services (Acceptance Ratio: 18.0%)
[Paper]

## Preprints

**Deciphering Personalization: Towards Fine-Grained Explainability in Natural Language for Personalized Image Generation Models** 2025

***Haoming Wang***, Wei Gao

[Paper]

**Freezeasguard: Mitigating illegal adaptation of diffusion models via selective tensor freezing** 2024

Kai Huang, ***Haoming Wang (co-author)***, Wei Gao

[Paper]