

Jinghao Wen

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RESEARCH INTERESTS

I aspire to build efficient, reliable, and trustworthy computing systems for next-generation machine learning. My research interests lie in computer architecture, machine learning systems, and system reliability, with a focus on improving AI robustness under hardware faults, soft errors, and resource constraints while balancing performance and efficiency.

EDUCATION

Villanova University, Villanova, PA
Ph.D in Computer Engineering

09/2024-present

Central China Normal University, Wuhan, China

09/2020-06/2024

Bachelor of Engineering in Computer Science and Technology, Core GPA: 87.1/100, Ranking: 3/182

- Honors: National Scholarship for Undergraduates (2024); Golden Scholarship for Merit Students (2021 & 2022)
- Key coursework: Operating System, Data Structures, Database, Algorithms Design and Analysis, Machine Learning

PUBLICATION

“Improving Efficiency and Reliability of Computer Vision Models in Real-World Deployment with MX Quantization”; **Jinghao Wen**, Ruixuan Wang, Shaohuang Wang, Xun Jiao; *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026

“Learning Fingerprints for Medical Time Series with Redundancy-Constrained Information Maximization”; Huayu Li, ZhengXiao He, Xiwen Chen, Jingjing Wang, siyuan tian, **Jinghao Wen**, Ao Li; *International Conference on Machine Learning (ICML)*, 2026

“Martingale Foresight Sampling: A Principled Approach to Inference-Time LLM Decoding”; Huayu Li, ZhengXiao He, Siyuan Tian, **Jinghao Wen**, Ao Li; *The European Chapter of the ACL (EACL)*, 2026

“MILEAM: Modeling Input-Aware Logic Errors of Approximate Multipliers using Machine Learning”; **Jinghao Wen**, Dongning Ma, Xun Jiao; *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2026

“Beyond Sampling: Classwise Loss Optimization for Imbalanced Deep Learning Recommendation Systems”; Xulei Zhang*, **Jinghao Wen***, Xun Jiao; *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2026

“HDFlow: A Multi-layer Design and Evaluation Framework for Hyperdimensional Computing”; **Jinghao Wen**, Dongning Ma, Sizhe Zhang, Xun Jiao; *The International Joint Conference on Neural Networks (IJCNN)*, 2026

“Revisiting Lottery Ticket Hypothesis: Toward Efficient and Robust Deep Neural Networks”; Ruixuan Wang, **Jinghao Wen**, Xun Jiao; *Proceedings of the Great Lakes Symposium on VLSI (GLSVLSI)*, 2026

“Neuro-Symbolic AI vs. Vector Symbolic Architectures: Learning, Architecture and Reasoning”; Ruixuan Wang, **Jinghao Wen**, Xun Jiao; *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 2026

“Proof-of-Useful-Work Blockchain for Trustworthy Biomedical Hyperdimensional Computing”; **Jinghao Wen**, Dongning Ma, Sizhe Zhang, Hasshi Sudler, Xun Jiao; *IEEE Biomedical Circuits and Systems Conference (BioCAS)*, 2025

“A Comparative Study of Structured and Narrative EHR Data for 30-Day Readmission Risk Assessment”; Zhengxiao He, Huayu Li, Siyuan Tian, **Jinghao Wen**, Geng Yuan, Ao Li; *Electronics*, 2025

“WiFi-based non-contact human presence detection technology”; Yang Zhang, Xuechun Wang, **Jinghao Wen**, Xianxun Zhu; *Scientific Reports*, 2024

RESEARCH EXPERIENCE

Research Assistant, University of Florida, SmartSystems Lab

06/2023-08/2023

Advised By: **Prof. Christophe Bobda**

Gainesville, FL

- For multi-camera system, realized the transformation and calibration among world coordinate, camera coordinate, image coordinate, pixel coordinate. Achieved camera pose estimation and triangulation.
- Applied the Canny and Sobel in edge detection, compared and applied Surf and Sift in feature detection and

keypoints matching. Added adaptive filters for a more smooth effect on noise and a less smooth effect on edge.

- Improved the anti-noise performance of the Sobel operator by using the weighted nuclear norm minimization (WNNM) image denoising algorithm.

Team Leader, Kaggle Machine learning Competition

11/2022-02/2023

*Silver Medal at Kaggle Competition, **top4%**, 2587 teams worldwide*

- *Competition topic*: building a multi-objective session-based recommender system to predict users' next clicks, cart additions, and orders in an e-commerce platform.
- Used multiple recall methods to identify the top 200 items that are most likely to be clicked/favored/purchased.
- Established a word2vec model, vectorized and coded the products. Established a product similarity matrix, based on the user's click behavior sequence from the real data in the German OTTO e-commerce platform.
- Constructed a series of characteristics of items, users, and item-user dimensions based on the recalled items.
- According to the status of the product, labeled the recalled data with 0 or 1. Established a LGB binary classification model, and selected 20 product IDs with the highest prediction probability.

Undergraduate Researcher, Central China Normal University, Smart Robot Lab

12/2020-03/2023

- *Research Topic*: developing an intelligent humanoid robot system with ROS-based simulation, embedded deployment, computer vision, gait planning, and servo-motor motion control.
- Simulated robot in ROS and deployed algorithms on Jetson Nano. Built a URDF model of the robot, developed robot's gait planning, path planning and conduct simulation in Rviz and Gazebo.
- Implemented OpenPose-based human posture recognition with 91.7% accuracy and converted joint skeleton distance and angle information into servo motor control signals, achieving an 88.6% action synchronization rate.

Undergraduate Researcher, Central China Normal University, Smart Robot Lab

05/2021-06/2022

- *Research Topic*: designing an Raspberry Pi-based intelligent quadruped robot with ROS-based simulation, SLAM map planning, UWB localization, wireless communication, multi-sensor fusion, and embedded object recognition.
- Built a Zigbee communication module to realize communication between robots. Enabled the robot's movement and obstacle avoidance by integrating the data of voice recognition, infrared laser, gyroscope and other sensors.
- Trained the Yolo V5 model in virtue of the products' image data autonomously collected by the camera and deployed the program to the Raspberry Pi to implement the robot's real object recognition.

SELECTED PROFESSIONAL EXPERIENCE

Co-Funder & Machine Learning Engineer

10/2025-present

Lagram Technologies

Shanghai & New York, NY

- Co-founded an AI-driven compliance automation startup for Testing, Inspection, and Certification (TIC) workflows, developing systems for regulatory reasoning, report generation, and customer management.
- Built machine-learning-based compliance reasoning systems combining hybrid document retrieval, regulatory knowledge graphs, and structured report generation with traceable evidence. Designed standard-agnostic architectures that separates regulatory clauses from workflow logic, enabling rapid adaptation across different national standards and product categories.
- Developed an automated annual-fee management system to summarize customer service records, calculate annual fees, generate client quotations, and streamline email-based customer communication.
- Supported early commercial deployment with international TIC companies ([Intertek](#), [Dekra](#)) validating the system through real industrial compliance-reporting and customer-management workflows.

Machine Learning Engineering Intern (Research-Oriented)

08/2025-12/2025

Internet Think Tank, Inc

Woodland Hills, CA

- Developed HDCoin, a proof-of-useful-work blockchain framework that transforms conventional mining into useful training of trustworthy biomedical Hyperdimensional Computing (HDC) models.
- Designed HDC-based mining and verification pipelines where distributed miners train, validate, reproduce, and verify biomedical learning models using nonce-generated item memories and HDC hyperparameter configurations.
- Conducted design-space exploration across HDC dimensionality, retraining iterations, and retraining rates on four biomedical datasets, including UCIHAR, BreastMNIST, PneumoniaMNIST, and NoduleMNIST3D.
- Evaluated adaptive mining difficulty and fairness mechanisms, showing how HDC configurations affect

computational effort, model performance, and miners' winning probability.

Project Product Manager & Algorithm Engineer Intern

03/2024-05/2024

Momenta (Autonomous Driving Company)

Shanghai, China

- Supported end-to-end project management for autonomous driving R&D projects, coordinating algorithm, software, and testing teams while tracking milestones, development schedules, and cross-functional resources. Translated road-test issues into actionable algorithm requirements and engineering tasks to improve development, testing, and delivery efficiency.
- Contributed to the development of **rule-based obstacle avoidance and emergency decision-making algorithms** for high-risk scenarios involving water barriers, traffic cones, road obstacles, and sudden vehicle cut-ins. Designed decision logic linking obstacle detection results to vehicle behavior and maneuver selection.
- Participated in real-world autonomous driving tests on elevated highways in Shanghai, completing **3,000+ miles of on-road testing** in real traffic conditions. Analyzed abnormal scenarios, tuned rule thresholds, and validated algorithm performance by investigating false triggers, missed responses, and unstable strategy transitions, contributing to improved emergency avoidance rules and broader scenario coverage.
- Served as a liaison among product teams, engineering teams, and external clients, translating business and customer needs into actionable technical and product requirements while supporting solution integration and delivery.

HONORS & AWARDS

Google Cloude Research Credits Scholarship	2026
Yongping'89 and Fei Lin'89 Gu Endowed Graduate Engineering Fellowship	2025
China National Scholarship for Undergraduates	2024
Silver Medal at OTTO - Multi-Objective Recommender System Competition (Kaggle top4% , 2587 teams)	2023
Second Prize at the national level in the 16 th China College Students Computer Design Competition	2023
First Prize at the national level in 2022 China Robot Competition & RoboCup China Open (dancing robot)	2022
Second Prize at the national level in 2022 China Robot Competition & RoboCup China Open (creative robot)	2022

TEACHING & MENTORSHIP

Villanova University: ECE1261,Engineering Programming & Applications Lab, Teaching Assistant	2026
Villanova University: Intern Mentor: Xianglong Yu (UPenn, graduate student)	2026
CCNU: Advanced Language Programming Experimental Course, Teaching Assistant	2024
CCNU: Data Structure, Teaching Assistant	2023

TECHNICAL SKILLS & LANGUAGES

Programming Languages: Python, C/C++, JavaScript, Java, x86 Assembly, HTML
AI & Big Data: SQL, MySQL, Pytorch, Linux, Tensorflow, NumPy, Pandas, Jupyter
Embedded hardware: Jetson Nano, Raspberry Pi, Arduino, ROS
Tools: Git, SolidWorks, 3ds Max, Photoshop, Premiere Pro
Languages: Chinese (native), English (IELTS:7.0)

ACTIVITIES AND OTHER EXPERIENCES

Session Chair: IJCNN, MWSCAS
Reviewer: AAAI, TCAD, ICASSP, IJCNN, MWSCAS, EMBC
Volunteer: China Robot Competition and RoboCup China Open