

Qingyong Hu

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Biography

I am a Postdoctoral Research Fellow at HKUST, advised by Prof. Qian Zhang. My goal is to enable **accessible healthcare through deployable, data-centric AIoT systems** that convert real-world signals into ecologically valid health indicators. I collaborate with clinicians and conduct in-the-wild studies that pair practical sensing systems with dedicated AI algorithms. My research spans motion, physiological, and cognitive sensing, with an emphasis on robustness and efficiency under deployment constraints and domain shifts. I also develop datasets and benchmarks to support rigorous evaluation and expose real-world bottlenecks. My research appears in ACM MobiCom, IMWUT/UbiComp, SenSys, INFOCOM, NeurIPS, CVPR and ECCV, and received the **ACM IMWUT Distinguished Paper Award (Top 1%)** in 2025. I was named as one of the ACM MobiSys Rising Stars in 2026.

Career

Hong Kong University of Science and Technology

Post-doctoral Research Fellow in Computer Science and Engineering

Advisor: Prof. Qian Zhang, IEEE Fellow, HKAE Fellow

Hong Kong, China

September, 2025-Now

Education

Hong Kong University of Science and Technology

Ph.D. Student in Computer Science and Engineering

Advisor: Prof. Qian Zhang, IEEE Fellow, HKAE Fellow

Hong Kong, China

September, 2020-August, 2025

University of Science and Technology of China

B.Eng in Computer Science and Technology, School of the Gifted Young

Hefei, China

September, 2015-July, 2020

Awards and Honors

- ACM MobiSys Rising Stars, 2026
- Best Paper Honorable Mention Award, CVPR SVC Workshop, 2026
- ACM IMWUT Distinguished Paper Award, 2025
- HKUST Research Travel Grant Award, 2023, 2025
- IEEE INFOCOM Student Travel Grant, 2023
- HKUST Postgraduate Studentship, 2020-2025
- TAL Education Group Scholarship, 2019
- President of Economic Students Union of USTC, 2019
- iTeach National Digital Education Application Design Competition 2nd Prize, 2018

Publications

Selected Publications (*: indicates co-first authors; _: students mentored by me.)

1. Beyond the Clinic: Multimodal Sensing Systems for Practical Healthcare

Qingyong Hu

ACM MobiSys Rising Stars Forum (Oral). A brief summary about my research in AI for Healthcare.

2. mmBrady: Contactless Upper-Limb Bradykinesia Monitoring for Parkinson's Disease via Semantic-Aware mmWave Sensing in Daily Life

Jinjian Wang*, **Qingyong Hu***, Yizhen Zhang, Yuxuan Zhou, Guihua Li, and Qian Zhang

Accepted by ACM IMWUT (UbiComp) 2026 with Minor Revision.

3. The EasyCog Dataset: Easier Cognitive Assessment With Passive Video Watching
Qingyong Hu*, Yuxuan Zhou*, Jinjian Wang, Yanbin Gong, Yizhen Zhang, Jingnan Sun, Jian Yao, Qijia Shao, Lili Qiu, Qian Zhang, Guihua Li
To appear in **ACM IMWUT (UbiComp) 2026**. Top Conference in Ubiquitous Computing.
4. mmTremor: Practical Tremor Monitoring for Parkinson's Disease and Essential Tremor in Daily Life
Qingyong Hu*, Yuxuan Zhou*, Jinjian Wang, Zirui Huang, Guihua Li, Qianhui Xu, Qian Zhang
ACM MobiCom 2025. Acceptance Rate = 13.1%, Top Conference in Mobile Computing, CCF-A.
5. Contactless Arterial Blood Pressure Waveform Monitoring with mmWave Radar
Qingyong Hu, Qian Zhang, Hao Lu, Shun Wu, Yuxuan Zhou, Qianyi Huang, Huangxun Chen, Yingcong Chen, Ni Zhao
ACM IMWUT (UbiComp) 2024. Distinguished Paper Award (Top 1%), CCF-A.
6. CSI-StripeFormer: Exploiting Stripe Features for CSI Compression in Massive MIMO System
Qingyong Hu, Hua Kang, Huangxun Chen, Qianyi Huang, Qian Zhang, and Min Cheng
IEEE INFOCOM 2023. Acceptance Rate = 19.2%, CCF-A.
7. PhysDrive: A Multimodal Remote Physiological Measurement Dataset for In-vehicle Driver Monitoring
Jiyao Wang*, Xiao Yang*, **Qingyong Hu***, Jiankai Tang, Can Liu, Dengbo He, Yuntao Wang, Yingcong Chen, Kaishun Wu
NeurIPS 2025 Datasets and Benchmarks Track. Acceptance Rate = 24.9%, CCF-A.

Under Preparation and In Submission

1. Towards a Unified mmWave Foundation Model for Comprehensive Human-centric Understanding
Ongoing.
2. Effortless Cognitive Assessment with Passive Video Watching
Ongoing.
3. DeepPIGD: Contactless In-Home Monitoring of Postural Instability and Gait Difficulty via Depth-Aware Skeleton Tracking
Yizhen Zhang, **Qingyong Hu**, Jinjian Wang, Meng Xue, Yuyao Wu, Chuyi Liu, Guihua Li, and Qian Zhang
In submission.
4. FabRisk: A Fabric-Based Wearable System for ACL Injury Risk Screening
Xinyi Zhang, Baichen Yang, **Qingyong Hu**, Xin He, Patrick Yung Shu-hang, and Qian Zhang
In submission.
5. SlowDet: Robust Detection Framework for Low-Altitude, Slow-Moving UAVs in Integrated Sensing and Communication
Yuxuan Zhou, **Qingyong Hu**, Hua Kang, Qian Zhang
In submission.

Conference Papers:

1. RPM-Distill: Physiology-guided Adaptive Cross-modal Distillation for Robust Remote Physiological Measurement
Jiyao Wang, **Qingyong Hu**, Duoxun Tang, Xiao Yang, Kaishun Wu, Jiangbo Yu
ECCV 2026. Acceptance Rate = 27.5%, CCF-B.
2. PIGDAssess: Wearable Dual-Task Sensing for Self-Administered PIGD Assessment in Parkinson's Disease
Yizhen Zhang, Jinjian Wang, Wentao Xie, **Qingyong Hu**, Haiyan Hu, Guihua Li, Qian Zhang
ACM IMWUT (UbiComp) 2026. Acceptance Rate = 25.0%, CCF-A.
3. PracticalBP: Continuous Cuffless Blood Pressure Monitoring with Only One Record for Calibration
Chenggao Li, Junyao Peng, **Qingyong Hu**, Lin Chen, Yandao Huang, Shun Wu, Weibin Cheng, Qian Zhang

ACM IMWUT (UbiComp) 2025. Acceptance Rate = 25.0%, CCF-A.

4. Period-LLM: Extending the Periodic Capability of Multimodal Large Language Model
Yuting Zhang, Hao Lu, **Qingyong Hu**, Yin Wang, Kaishen Yuan, Xin Liu, Kaishun Wu
CVF/IEEE CVPR 2025. Acceptance Rate = 22.1%, CCF-A.
5. SF-Adapter: Computational-Efficient Source-Free Domain Adaptation for Human Activity Recognition
Hua Kang, **Qingyong Hu**, Qian Zhang
ACM IMWUT (UbiComp) 2024. Acceptance Rate = 25.0%, CCF-A.
6. Cross-Shaped Separated Spatial-Temporal UNet Transformer for Accurate Channel Prediction
Hua Kang, **Qingyong Hu**, Huangxun Chen, Qianyi Huang, Qian Zhang, Min Cheng
IEEE INFOCOM 2024. Acceptance Rate = 19.6%, CCF-A.
7. PDAssess: A Privacy-preserving Free-speech based Parkinson's Disease Daily Assessment System
Baichen Yang, **Qingyong Hu**, Wentao Xie, Xinchun Wang, Wei Luo, Qian Zhang
ACM SenSys 2023. Acceptance Rate = 19.0%, CCF-B, top venue in mobile computing.
8. RIScan: RIS-aided Multi-user Indoor Localization Using COTS Wi-Fi
Chenggao Li, Qianyi Huang, Yuxuan Zhou, Yandao Huang, **Qingyong Hu**, Huangxun Chen, Qian Zhang
ACM SenSys 2023. Acceptance Rate = 19.0%, CCF-B, top venue in mobile computing.
9. EarSpiro: Earphone-based Spirometry for Lung Function Assessment
Wentao Xie, **Qingyong Hu**, Jin Zhang, and Qian Zhang
ACM IMWUT (UbiComp) 2023. Acceptance Rate = 25.0%, CCF-A.
10. Backdoor Defense via Deconfounded Representation Learning
Zaixi Zhang, Qi Liu, Zhicai Wang, Zepu Lu, and **Qingyong Hu**
IEEE/CVF CVPR 2023. Acceptance Rate = 25.8%, CCF-A.
11. Hierarchical Graph Transformer with Adaptive Node Sampling
Zaixi Zhang, Qi Liu, **Qingyong Hu**, and Chee-Kong Lee
NeurIPS Spotlight 2022. Acceptance Rate = 5.0%, CCF-A.

Journal Papers:

1. Multifactorial Analysis of Cognitive Impairment in Parkinson's Disease: A Data-Driven Approach Using Eye-Tracking Technology, Blood Biomarkers, and Clinical Scales
Xianglian Liao, Jian Yao, Tang Hong, Yin Tang, Hong Yin, **Qingyong Hu**, Xing Yilan, Peng Li, GuiHua Li
Under review.
2. Ubicon-BP: Towards Ubiquitous, Contactless Blood Pressure Detection Using Smartphone
Yuan Wu, Shoudu Bai, **Qingyong Hu**, Bo Wang, Min Li, Xinrong Hu, Yanjiao Chen
IEEE Transactions on Mobile Computing 2025. CCF-A.
3. AI-driven System for Non-contact Continuous Nocturnal Blood Pressure Monitoring using Fiber Optic Ballistocardiography
Yandao Huang, Lin Chen, Chenggao Li, Junyao Peng, **Qingyong Hu**, Yu Sun, Hao Ren, Weimin Lyu, Wen Jin, Junzhang Tian, Changyuan Yu, Weibin Cheng, Kaishun Wu, Qian Zhang
Communications Engineering 2024. Acceptance Rate=28.1%, Nature portfolio journals.
4. CMPR: Contrastive Multi-Branch and Posterior Regularization Learning Scheme for Long-Tailed Scarce Health Data Prediction
Haiyan Hu, **Qingyong Hu**, Huangxun Chen, Wei Li, Qian Zhang
In submission to **IEEE Journal of Biomedical and Health Informatics.** Impact factor=7.7.
5. FedGT: Federated Node Classification with Scalable Graph Transformer
Zaixi Zhang, **Qingyong Hu**, Yang Yu, Weibo Gao, Qi Liu
Arxiv'24.

Workshop Paper:

1. Sage Deer: A Super-Aligned Driving Generalist Is Your Copilot
Hao Lu, Jiaqi Tang, Yuting Zhang, Jiyao Wang, Yunfan Lu, Xu Cao, **Qingyong Hu**, et, al.
IEEE/CVF CVPR SVC Workshop, 2026. Best Paper Honorable Mention Award.
2. GPT as Psychologist? Preliminary Evaluations for GPT-4V on Visual Affective Computing
Hao Lu, Xuesong Niu, Jiyao Wang, Yin Wang, **Qingyong Hu**, et, al.
IEEE/CVF CVPR Workshop 2024.

Patents

- Qingyong Hu, Yuxuan Zhou, Jinjian Wang, Guihua Li, Qianhui Xu, and Qian Zhang, "A Software System for Practical Tremor Monitoring for Parkinson's Disease and Essential Tremor in Daily Life", IP.PA.12427.CN.
- Qingyong Hu, Qian Zhang, and Yuxuan Zhou, "Contactless Arterial Blood Pressure Waveform Monitoring with mmWave Radar", IP.PA.12403.US.
- Qingyong Hu, Hua Kang, Qian Zhang, and Min Cheng, "Data Decoding Method, System, and Related Device", IP.PA.01920.CN.

Experience

- **Mentoring Experience**
 - Fall 2024-Now Yizhen Zhang, Mentored PhD Student, HKUST
One paper accepted by ACM IMWUT (UbiComp) and one paper submitted to ACM SenSys
 - Spring 2024-Now Jinjian Wang, Mentored PhD Student, HKUST
One paper under minor revision of ACM IMWUT (UbiComp)
- **Internship**
 - Software Development Engineer Intern, *Tencent* 2019.9-2019.11
 - Developed and adapted a feature toggle SDK to help combine new features efficiently.
 - Investment Analyst Intern, *Alpha Startups (Venture Capital)* 2018.7-2018.10
 - Conducted deal-oriented studies by analyzing the potential of investment targets.
 - Developed tools to speed up deal-sourcing workflows.
- **Conference Committee**
 - 2026 ACM ISWC Technical Program
 - 2026 ACM MLSys Artifact Evaluation
 - 2026 ACM MobiSys Artifact Evaluation
 - 2025 ACM MobiCom Artifact Evaluation
- **Reviewer**
 - 2026 IEEE TMC, ICASSP, IJCNN, Network; CVF/IEEE CVPR; JMIR Cardio; PR; ACM IMWUT (UbiComp), AgentSkills
 - 2025 IEEE TMC, TReI, ICASSP, IJCNN; CVF/IEEE CVPR, ICCV; ACM CHI, IMWUT (UbiComp), TIST
 - 2024 IEEE TMC, ICASSP; ACM IMWUT (UbiComp)
 - 2023 ACM ToSN
- **Teaching Assistant**
 - COMP 4531 IoT and Smart Sensing, 2023 Fall
 - COMP 2611 Computer Organization, 2022 Fall
 - COMP 4901S IoT and Mobile Sensing, 2021 Fall
 - COMP 2611 Computer Organization, 2021 Spring

Skills

- Programming: Python; Matlab; C++
- Platform & Tools: Pytorch; CUDA

- Hardware: mmWave sensor (TI radar series); IMU; WiFi card (Intel 5300)
- Algorithms: Machine learning; deep learning architecture (CNN, RNN, Transformer, etc.); model training (loss function design, data augmentation, self-supervised learning); multimodal fusion; time-series analysis

References

- Prof. Qian Zhang
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HKAE, IEEE Fellow
Email: qianzh@cse.ust.hk
Relationship: PhD Supervisor
- Prof. Lili Qiu
Professor, UT Austin
NAI, ACM, IEEE Fellow
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Relationship: Academic Collaborator
- Prof. Yincgcong Chen
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Relationship: Academic Collaborator