贾海峰 Haifeng Jia

信息与通信工程博士研究生
上海交通大学浦江国际学院
NetSense-Lab | 中国上海

ethanjia@sjtu.edu.cn
haifengjia.github.io
Google Scholar | GitHub | ORCID

Research Interests

3D/4D Reconstruction from Multimodal Signals (Radio, Visual, Etc.), **Neural Radio-Frequency Digital Twins**, Embodied IoT And Spatial Intelligence, Low-Power Wireless Sensor Networking.

Education

上海交通大学　信息与通信工程，博士研究生 2023.09 – 至今
浦江国际学院 | 导师：皮宜博副教授（Yibo Pi） | NetSense-Lab

上海交通大学　电子与计算机工程，工学学士 2019.09 – 2023.08
密西根学院（现浦江国际学院）

麦吉尔大学　冬季交流项目 2020.01 – 2020.02
商业管理与数据建模

Publication List

本人姓名加粗，* 表示共同第一作者。

[1] SurfNeHF: Surface-Aware Neural Height Fields for Efficient 3D Urban Mapping Using Crowdsourced GNSS Data
Haifeng Jia, Xingyuan Ding, Minyang Qu, Yibo Pi, Cailian Chen.
Proc. ACM on Interactive, Mobile, Wearable And Ubiquitous Technologies (**IMWUT / UbiComp**), 10(2), 2026.
CCF A JCR Q1 Project: https://haifengjia.github.io/surfnehf/ | Code | Paper

[2] Power-Domain Interference Graph Estimation for Multi-Hop BLE Networks
Haifeng Jia, Yichen Wei, Yibo Pi, Cailian Chen.
ACM Transactions on Sensor Networks (**TOSN**), 20(6), Article 115, 2024.
CCF B JCR Q1 Paper

[3] Neural Reflectance Fields for Radio-Frequency Ray Tracing
Haifeng Jia, Xinyi Chen, Yichen Wei, Yifei Sun, Yibo Pi.
IEEE Global Communications Conference (**GLOBECOM**), pp. 4226–4231, 2024.
CCF C TH-CPL B CORE B Paper

[4] Efficient Interference Graph Estimation via Concurrent Flooding
Haifeng Jia*, Yichen Wei*, Zhan Wang, Jiani Jin, Haorui Li, Yibo Pi.
International Conference on Embedded Wireless Systems And Networks (**EWSN**), pp. 249–255, 2023.
CORE B Paper

[5] Bridging the Gap between Simulation And Reality for Ultra-Reliable Communications
Daqian Ding, **Haifeng Jia**, Haorui Li, Yibo Pi, Cailian Chen.
IEEE Wireless Communications Letters (**WCL**), 2026，已录用。
JCR Q1 Paper

Academic Service

Reviewer ACM MobiCom 2027，Scientific Reports 2026，ArtInHCI 2026，SenSys RFCom 2024。

Technical Program Chair ACM MobiCom 2026 Artifact Evaluation Committee (AEC)。

Research Experience

NetSense-Lab，上海交通大学 | 指导教师：皮宜博副教授

SurfNeHF: 3D Urban Mapping from Crowdsourced GNSS IMWUT / UbiComp 2026

- 表面感知神经高度场与射频逆渲染，联合学习建筑几何、反射特性与卫星信号源。
- 论文评测平均平衡准确率 94.6%，计算开销较对比基线降低 80–90%。

Multimodal 3D Reconstruction Manuscripts Submitted / Under Review

- 融合 GNSS、蜂窝测量与卫星影像先验，通过神经表面与体密度混合表征、可微逆渲染，重建建筑、植被与射频材料特性。
- 两篇论文已投稿至 ACM SIGMOBILE / IEEE ComSoc 顶级会议，目前正接受同行评审。

Sparse-View 4D Reconstruction Ongoing

- 研究稀疏视角条件下的生成式 4D 重建方法，以满足实时性需求为目标。

Neural Reflectance Fields for RF Ray Tracing GLOBECOM 2024

- 基于接收功率学习角度相关的反射系数，联合考虑射频信号幅度、相位与多径效应。
- 可微射线追踪驱动神经场优化，仿真中以更少训练数据改善接收功率预测精度。

Power-Domain Interference Estimation in BLE Networks TOSN 2024 / EWSN 2023

- 干扰图估计与并发洪泛融合，测量与通信共享时频资源。
- 功率线性条件与硬件非理想因素分析，多跳 BLE 协议及功率控制，用于信道映射收敛与汇聚通信。

Honors And Awards

郭谢碧蓉奖学金	2024.11
俞黎明奖学金	2024.11
上海交通大学优秀毕业生	2023.08
未来技术太湖奖学金	2023.07
上海交通大学本科生优秀奖学金	2021.11
上海交通大学三好学生	2021.11

Teaching Experience

Teaching Assistant | 上海交通大学

VE586 Advanced Computer Networks	2026 年春季
VE441 App Development for Entrepreneurs	2023 年夏季
VE281 Introduction to Data Structures And Algorithms	2021 年秋季
VG100 Introduction to Engineering	2021 年夏季

Mentorship

Chotiwit Rungrueangwutthinon (Master's Student)	2026 – 至今
Xingyuan Ding (Undergraduate)	2025 – 至今
Jishan Ge (Undergraduate)	2026 – 至今
Jianing Huang (Undergraduate) → Master's Student at SJTU	2025 – 2026

Technical Skills And Languages

科研与开发 Python, PyTorch, C/C++, MATLAB, JavaScript, TypeScript, React, Elm.
工具与系统 ns-3, MongoDB, SQLite, Linux, Windows.
语言 中文（母语），英语（熟练）。
英语考试 TOEFL 110, CET-4, CET-6.

Haifeng **Jia**

Ph.D. Candidate in Information And Communication Engineering
Global College, Shanghai Jiao Tong University
NetSense-Lab | Shanghai, China

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Research Interests

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Education

Shanghai Jiao Tong University Sep. 2023 – Present
Ph.D. Candidate in Information And Communication Engineering, Global College.
Advisor: Prof. Yibo Pi | Networking And Sensing Lab (NetSense-Lab)

Shanghai Jiao Tong University Sep. 2019 – Aug. 2023
B.E. in Electrical And Computer Engineering.
University of Michigan–Shanghai Jiao Tong University Joint Institute (Now Global College).

McGill University Jan. – Feb. 2020
Winter Program in Business Management And Data Modeling.

Publication List

Bold: Haifeng Jia | *Equal Contribution

[1] **SurfNeHF: Surface-Aware Neural Height Fields for Efficient 3D Urban Mapping Using Crowdsourced GNSS Data**
Haifeng Jia, Xingyuan Ding, Minyang Qu, Yibo Pi, Cailian Chen.
Proc. ACM on Interactive, Mobile, Wearable And Ubiquitous Technologies (**IMWUT / UbiComp**), 10(2), 2026.
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[5] **Bridging the Gap between Simulation And Reality for Ultra-Reliable Communications**
Daqian Ding, **Haifeng Jia**, Haorui Li, Yibo Pi, Cailian Chen.
IEEE Wireless Communications Letters (**WCL**), Accepted, 2026.
JCR Q1 Paper

Academic Service

Reviewer ACM MobiCom 2027, Scientific Reports 2026, ArtInHCI 2026, SenSys RFCom 2024.

Technical Program Chair ACM MobiCom 2026 Artifact Evaluation Committee (AEC).

Research Experience

Networking And Sensing Lab (NetSense-Lab), SJTU | Research with Prof. Yibo Pi

SurfNeHF: 3D Urban Mapping from Crowdsourced GNSS IMWUT / UbiComp 2026

- Surface-aware neural height fields and RF inverse rendering, jointly learning building geometry, reflectance and satellite sources.
- 94.6% mean balanced accuracy with 80–90% lower computational overhead than evaluated baselines.

Multimodal 3D Reconstruction Manuscripts Submitted / Under Review

- Fuse GNSS and cellular measurements with satellite-image priors to reconstruct buildings, foliage and RF material properties using hybrid surface–density fields and differentiable inverse rendering.
- Two manuscripts submitted to leading ACM SIGMOBILE / IEEE ComSoc conferences, currently undergoing peer review.

Sparse-View 4D Reconstruction Ongoing

- Develop generative methods for sparse-view 4D reconstruction, targeting real-time performance.

Neural Reflectance Fields for RF Ray Tracing GLOBECOM 2024

- Angle-dependent reflectance learned from received power, accounting for RF amplitude, phase and multipath.
- Differentiable ray tracing for neural-field optimization, improving simulated power prediction with less training data than compared methods.

Power-Domain Interference Estimation in BLE Networks TOSN 2024 / EWSN 2023

- Interference graph estimation during concurrent flooding, sharing time-frequency resources between measurement and communication.
- Power-linearity and hardware-effect analysis, multi-hop BLE protocols and power control for channel-map convergence and convergecast.

Honors And Awards

Guo Xie Birong Scholarship	Nov. 2024
Yu Liming Scholarship	Nov. 2024
Outstanding Graduate, Shanghai Jiao Tong University	Aug. 2023
Future Technology Taihu Scholarship	Jul. 2023
Undergraduate Excellent Scholarship, Shanghai Jiao Tong University	Nov. 2021
Merit Student, Shanghai Jiao Tong University	Nov. 2021

Teaching Experience

Teaching Assistant, Shanghai Jiao Tong University

VE586 Advanced Computer Networks	Spring 2026
VE441 App Development for Entrepreneurs	Summer 2023
VE281 Introduction to Data Structures And Algorithms	Fall 2021
VG100 Introduction to Engineering	Summer 2021

Mentorship

Chotiwit Rungrueangwutthinon (Master's Student)	2026 – Present
Xingyuan Ding (Undergraduate)	2025 – Present
Jishan Ge (Undergraduate)	2026 – Present
Jianing Huang (Undergraduate) → Master's Student at SJTU	2025 – 2026

Technical Skills And Languages

Research And Development Python, PyTorch, C/C++, MATLAB, JavaScript, TypeScript, React, Elm.
Tools And Systems ns-3, MongoDB, SQLite, Linux, Windows.
Languages Mandarin Chinese (Native), English (Fluent).
English Tests TOEFL 110, CET-4, CET-6.