

Haofeng Liu

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EDUCATION

[2022 - Present] **The University of Manchester**
[PhD] Microwave and Communication System Research Group

- Conducting cutting-edge research on Non-Orthogonal Multiple Access (NOMA) and Integrated Sensing and Communication (ISaC) systems. Exploring theoretical frameworks, machine learning techniques, and system optimization strategies to enhance next-generation wireless networks.
- Derived and validated advanced theoretical frameworks for NOMA and ISaC systems, including complex mathematical expressions, machine learning and convex optimization strategies to enhance system performance.
- Effectively communicated research at departmental seminars, earning third place in a poster competition by demonstrating strong analytical thinking and presentation skills to both academic and industry audiences.
- **Selected Publications**
 - ◆ H. Liu., E. Alsusa, A. Al-Dweik and Nazar T Ali "[A CSI-Anomaly-Based Approach to ISaC](#)," *TechRxiv*., Jan. 2025.
 - ◆ H. Liu., E. Alsusa and A. Al-Dweik, "[Performance Analysis of Pair-wise Symbol Detection in Uplink NOMA-ISaC Systems](#)," *arXiv* 2408.17449, Aug. 2024.
 - ◆ H. Liu, E. Alsusa and A. Al-Dweik, "[Efficient Receiver Design for Uplink NOMA-based ISaC Systems with Interference Cancellation](#)," *2024 IEEE Wireless Communications and Networking Conference (WCNC)*, Dubai, United Arab Emirates, 2024, pp. 1-6.
 - ◆ H. Liu and E. Alsusa, "[A Novel ISaC Approach for Uplink NOMA System](#)," in *IEEE Communications Letters*, vol. 27, no. 9, pp. 2333-2337, Sept. 2023.

[2020 - 2021] **The University College London**
[MSc] Wireless and Optical Communication
Overall grade: 73 %, Graduated as Distinction

- Deepened expertise in wireless communication theory, telecommunications networks, and optical communication systems, bringing together digital and mobile communication concepts.
- **Individual Project: "Exploiting Known Interference for Physical Layer Security"**
 - ◆ Leveraged MATLAB and Python to precoding the transmitted signals, implemented deep unfolding neural network algorithm to reduce eavesdropper detection probability by 50%.
 - ◆ Enhanced system robustness against adversarial attacks, demonstrating strong proficiency in signal processing and machine learning techniques.

[2018 - 2020] **The University of Leeds**
[BSc] Electronic and Communications Engineering
Second year: 77 %, Third year: 70%, Graduated as First Class

- Build a strong foundation in circuit design, communications theory, control systems, analog and digital signal processing, microcontroller, and embedded systems.

- Led a 4-member team to prepare, build, and present an engineering game at a departmental seminar, demonstrating leadership, collaboration, and presentation skills.
- **Individual Project: “Fetal Heart Rate Monitor”**
 - ◆ Designed and assembled a custom PCB integrated with a PIC16F877 microcontroller, enabling real-time fetal heart rate monitoring.
 - ◆ Implemented advanced noise cancellation and data extraction algorithms to improve electrocardiogram (ECG) clarity, achieving accurate fetal ECG readings in high-interference environments.
 - ◆ Demonstrated expertise in embedded systems, firmware coding, and hardware troubleshooting.

OTHER WORK EXPERIENCE

Sep 2022 – Present **The University of Manchester -- Graduate Teaching Assistant**

- Provide step-by-step guidance to undergraduate and postgraduate students on coursework and lab exercises, boosting overall understanding and performance.
- Collaborate with course leaders and fellow TAs to refine teaching materials, enhancing student satisfaction and engagement.

Aug 2019 – Sep 2019 **China Skyworth Group -- Hardware Engineer Assistant**

- Tested and troubleshot PCB boards for a 120-inch 4K OLED TV, resolving circuit stability issues and improving performance.
- Exhibited and introduced the prototype product at the Shenzhen Science and Technology Exhibition.

POSITIONS OF RESPONSIBILITY

Oct 2023 – Oct 2024 **IEEE ComSoc Student Chapter, The University of Manchester Secretary**

- Coordinate society events, workshops, and networking sessions by sending invitations, liaising with speakers, and managing logistics.
- Ensure compliance with university policies by preparing and submitting necessary documentation, such as budget proposals and activity plans.

Oct 2020 – Jul 2021 **The University College London Student Representative**

- Served as a liaison between students and faculty/administration, gathering feedback and advocating for students' concerns and suggestions.
- Co-ordinated to decision-making processes on academic and social policies, safeguarding student rights and enhancing transparency during COVID-19.

ADDITIONAL SKILLS

IT: Matlab, C, Python, Latex, Microsoft Office (Word, Excel, PowerPoint).

Languages: English (Fluent – academic writing & presentation), Mandarin (native)

References available on request