Shun Zhuge

+31620983234 • S.Zhuge@tudelft.nl

Delft, Netherlands

EDUCATION

Delft University of Technology (TU Delft) Sep. 2024 – Present

Doctor of Philosophy *Delft, Netherlands*

- Under the Marie Skłodowska-Curie Actions Doctoral Network (MSCA-DN)

Nanyang Technological University (NTU) Aug. 2022 – Jun. 2024

Master of Science (Communication Engineering) *Singapore*

- CGPA: **4.44/5.00**

Australian National University (ANU) Jul. 2018 – Jul. 2022

Bachelor of Engineering (Honours), major in Electronic and Communication Systems, minor in Finance *Canberra, Australia*

- GPA: **6.07/7.00.**
- Honours Grade: **2nd class honours division awarded A**

SKILLS

- **Programming**: MATLAB, Python, Simulink, Verilog, C
- **Software**: GitLab, Linux, Visual Studio Code, Windows, SolidWorks, Figma, ANASY, LTspice, Vivado
- **Languages**: Mandarin (native), English (fluent)

RESEARCH PROJECTS

Light-weight JCAS Analytics for Resources-Constrained Embedded Devices Sep. 2022 – Present

- Host institutes: TU Delft, Bosch, and University of Trento (UNITN).
- Supervisors: Assoc. Prof. Qing Wang (TU Delft), Dr. Andreas Muller (Bosch), and Prof. Paolo Casari (UNITN).
- This project is under the 6thSense: MSCA-DN on Joint Communication and Sensing (JCAS) in 6G Networks.
- To develop self-optimizing algorithms for adaptive allocation of on-board computational and communication resources in embedded devices.
- To employ knowledge distillation techniques to create performance and low-complexity models for embedded devices.

Master's Dissertation: Integrated Sensing and Communication (ISAC) Aug. 2022 – Jun. 2024

- Host institutes: NTU and Institute for Infocomm Research (I^2R), A*STAR.
- Supervisors: Assoc. Prof. Zhiping Lin (NTU), Dr. Yonghong Zeng (I^2R), and Dr. Yugang Ma (I^2R).
- Investigate target localization within the ISAC system, leveraging radar parameters obtained from the communication receiver.
- Develop a novel localization algorithm focusing on multistatic sensing, utilizing bistatic range, bistatic range rate, and degree of arrival for the moving target tracking.
- The proposed algorithm demonstrates superior performance compared to the existing well-known two-step weighted least square (2WLS) method, achieving lower root-mean-square error in both position and velocity estimation.
- Extend the research to address realistic scenarios, including moving transmitters, unknown transmitters, and tracking of multiple targets.

Honours Project: Ultra-Reliable and Low Latency Communication (URLLC) Jul. 2021 – Jun. 2022

- Host institute: ANU
- Supervisor: Prof. Nan Yang

- Investigated short-packet communication (SPC) in the context of Multiple-Input Multiple-Output (MIMO) Non-Orthogonal Multiple Access (NOMA).
- Conducted an extensive literature review, analyzing over 50 journal articles to build a comprehensive understanding of the field.
- Successfully reproduced two selected technical papers, building their system models, and deriving approximate and asymptotic closed-form expressions of the average block error rate (BLER) at different users.
- Presented findings through an oral presentation to the supervisor and examiners.

WORK EXPERIENCES

Student Attachment Aug. 2022 – Jun. 2024

*I^2R, A*STAR* *Singapore*

- Principle Investigators: Dr. Yonghong Zeng (IEEE Fellow), Dr. Yugang Ma
- Present literature reviews on assigned topics and update research findings in bi-weekly ISAC team meetings.
- Organize occasional events such as seminars, workshops, and invited talks by external researchers.
- Presented the authored conference paper in the IEEE VTC-Spring 2024.
- A co-authored conference paper is accepted for presentation in the IEEE ISCAS 2025.
- An authored journal paper is currently under review.

Product Engineering Assistant (Internship) Dec. 2020 – Jan. 2021

Department of Technology, Huake 3D *Wuhan, China*

- Designed and modified more than 40 CAD models with specifications for performance testing of the new 3D printing platform.
- Contributed to a 40-page technical report.

Assistant Teacher (Internship) Dec. 2019 – Feb. 2020

U-CAN Secondary School, New Oriental *Wuhan, China*

- Prepared teaching materials for lessons, exams, and homework.

PUBLICATIONS

- Q. Yuan, **S. Zhuge**, Z. Lin, Y. Ma, and Y. Zeng, "Kalman Filtering based Target Tracking for Multistatic Sensing in ISAC Systems", *IEEE ISCAS*, London, UK, May 2025.
- **S. Zhuge**, Y. Ma, Z. Lin, and Y. Zeng, "A Novel Geometric Solution for Moving Target Localization through Multistatic Sensing in the ISAC System", *IEEE VTC-Spring*, Singapore, June 2024.
- (Under review) **S. Zhuge**, Z. Lin, Y. Ma, and Y. Zeng, "Multistatic Sensing for Target Localization in ISAC systems with Dynamic and Unknown-location Transmitters".