Zefu Gao

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LinkedIn: https://www.linkedin.com/in/zefu-william-gao/

Website: https://scholar.google.com/citations?user=3VjwIDsAAAAJ&hl=en

Website: https://www.unibo.it/sitoweb/zefu.gao2

Work: University of Bologna, (Italy)

ABOUT ME

Zefu Gao earned his B.S. and M.S., both from Space Engineering University, China, in 2021 and 2023, respectively. From 2021 to 2023, he was also with the Key Laboratory of Intelligent Space TT&C and Operation, Ministry of Education, Beijing, China. From Sep 2023 to December 2023, he was also co-trained in University of Chinese Academy of Sciences. From July 2024 to Oct 2024, he was a Research Assistant in Eastern Institute of Technology, Ningbo (EIT), China. He is now a PhD researcher in Digicomm Research Group, "DEI" department, University of Bologna. He has keen research interest in wireless communication, signal processing algorithm optimization, sensor networks, and AI algorithms in 6G. He has published 16 papers with the IF accumulates to 13.5, holds more than 10 patents. He has been awarded numerous prizes during international/national competitions during his undergraduate and master's degrees. He has been served as the reviewer in several peer-reviewed journals, such as IET Radar, Sonar & Navigation since 2022, Digital Signal Processing and Acta Astronautica since 2024.

EDUCATION AND TRAINING

PhD student in Electronics, Telecommunications, and Information Technologies Engineering

University of Bologna [01/11/2024 – Current]

City: Bologna | **Country:** Italy | **Website:** https://www.unibo.it/sitoweb/zefu.gao2 | **Field(s) of study:** 6G-NTN; Radio Resource Management; Reinforcement Learning; Space-Air-Ground Integrated Network

Master of Engineering in Electronic Information

Space Engineering University [01/09/2021 – 31/12/2023]

City: Beijing | **Country:** China | **Field(s) of study:** Digital Signal Processing; Software Radio and Cognitive Radio Technology; Radar Signal Processing; Statistical Signal Processing; Machine Learning and Application; Information Theory | **Final grade:** 85.16/100 | **Thesis:** Research on key technologies for CEI-based tracking and measurement of non-cooperative spacecraft in high-orbit and cislunar space

Matser (Joint training)

Chinese Academy of Sciences [01/09/2023 – 31/12/2023]

Bachelor of Engineering in Measurement and Control Engineering

Space Engineering University [01/09/2017 – 30/06/2021]

City: Beijing | **Country:** China | **Field(s) of study:** Microwave Technology and Antennas; Communication Electronics; Artificial Intelligence; Fundamentals of Data Processing; Random Signal Analysis; Digital Signal Processing | **Final grade:** 81.82/100 | **Thesis:** Research and implementation of phase difference estimation algorithm for rotating phase interferometer

LANGUAGE SKILLS

Mother tongue(s): Chinese

Other language(s):

English: IELTS 7.0; CET-6 575; CATTI-2, MOHRSS, China

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

[2023]
A Measurement Method for Cislunar Spacecraft Based on Connected Element Interferometry and BeiDou-3 Interplanetary Link in Future Lunar Exploration. Gao Z, Yang W, Ma H, Teng F, Li C, Li X, Wang Y, Jiao Y. Remote Sensing. 2023; 15(15):3744. SCI: 001046802200001, **JCR Q1, IF=5**

A SOM-CNN algorithm for NLOS signal identification. GAO, Z. F., Tao, H. C., Zhu, Q. Y., Jiao, Y. W., Li, D., MAO, F. L., ... & Wang, Y. X. IEICE Transactions on Communications. 106(2), 117-132, 2023. SCI: 000990005900003, **JCR Q4, IF= 0.7**

[2024]
A frequency estimation algorithm for high precision monitoring of significant space targets. GAO, Ze FU, Wen GE YANG, and Yi WEN JIAO. IEICE transactions on Fundamentals of Electronics Communications and Computer Sciences. Vol.E107-A,No.7,pp.-,Jul. 2024. SCI, **JCR Q4, IF= 0.7**

[2023]
A Method for UWB Localization Based on CNN-SVM and Hybrid Locating Algorithm. Gao Z, Jiao Y, Yang W, Li X, Wang Y. Information. 2023; 14(1):46. Information 14, no. 1: 46. 2023. **ESCI**: 000919781500001, **EI**: 20230513454623.

[2024]
A high-performance antenna array signal processing method in deep space communication. JIAO, Yi WEN, **Ze FU GAO*(corresponding)**, and Wen GE YANG.IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences. Vol.E107-A,No.7,pp.-,Jul. 2024. SCI, **JCR Q4, IF= 0.7**

[2023]
A CEI-Based Method for Precise Tracking and Measurement of LEO Satellites in Future Mega-Constellation Missions. Zhang E, Wu T, Hu M, Yang W, Ma H, Jiao Y, Shi X, **Gao Z*(corresponding)**. A CEI-Based Method for Precise Tracking and Measurement of LEO Satellites in Future Mega-Constellation Missions. Electronics. 2023; 12(16):3385. SCI: 001055715900001, **JCR Q2, IF=2.9**

[2023]
Grassland Health in Xilin Gol League from the Perspective of Machine Learning—Analysis of Grazing Intensity on Grassland Sustainability. Gao Z, Zhu Q, Tao H, Jiao Y. Grassland Health in Xilin Gol League from the Perspective of Machine Learning—Analysis of Grazing Intensity on Grassland Sustainability. Sustainability. 2023; 15(4):3398. SCI: 000941499800001, **JCR Q2, IF=3.9**

[2022]
Multiphase Parallel Demodulation for Remote Sensing Satellite Data Transmission—Filter Bank Based on WOLA Structure F. Teng, Y. Jiao, W. Yang, J. Yan, **Z. Gao** and Z. Lu. IEEE JSTARS, vol. 15, pp. 9556-9565, 2022. **JCR Q1**

CONFERENCES AND SEMINARS

[04/05/2025 – 09/05/2025] Ancona, Italy
Radio Resource Management in 6G-NTN: challenges and future directions, 2025 IEEE ESIT Poster presentation, 2025 IEEE European School of Information Theory (ESIT)

[04/12/2022 – 08/12/2022] Rio de Janeiro, Brazil

A high-precision frequency estimation method for CEI signals of high-orbit satellites, IEEE GLOBECOM 2022 Z. Gao et al., 2022 IEEE Global Communications Conference, pp. 3156-3161. **SCI**: 000922633503032, **EI**: 20230513464442.

[19/07/2022 – 22/07/2022] Shenzhen, China
A novel algorithm for accurate UWB positioning based on CNN and hybrid locating method, ISNCC 2022 Z. F. Gao et al. 2022 International Symposium on Networks, Computers and Communications (ISNCC), 2022, pp. 1-8. **EI**: 20223612694637

[15/10/2021 – 17/10/2021] Xi'an, China
Design of direction finding system of rotating multi-baseline phase interferometer based on GPU and DDS. ITNEC 2021 Z. Gao, Y. Jiao, D. Li, C. Li, F. Mao and Y. Wu. 2021 IEEE 5th Information Technology, Networking, Electronic and Automation Control Conference (ITNEC), 2021, pp. 268-273. **EI**:20214711192809.

HONOURS AND AWARDS

[08/2021] Chinese Institute of Electronics, the Chinese Society for Degree and Postgraduate Education
First Prize of the National Final of the 16th China Graduate Student Electronic Design Competition "Mega Innovation Cup"

[31/12/2023] Ministry of Education, China Society for Degree and Postgraduate Education
First Prize of "Huawei Cup" Twentieth China Graduate Student Mathematical Modeling Competition

[12/2020] Chinese Mathematical Society
First Prize of the Twelfth National University Student Mathematics Competition

[07/2020] Chinese Life Science Society
First Prize in the Final of the 2020 National Challenge of Mathematical Ability in Higher Education Institutions

[31/12/2022] Ministry of Education, China Society for Degree and Postgraduate Education
Second Prize of "Huawei Cup" Nineteenth China Graduate Student Mathematical Modeling Competition

[31/12/2021] Ministry of Education, China Society for Degree and Postgraduate Education
Second Prize of "Huawei Cup" Eighteenth China Graduate Student Mathematical Modeling Competition

[11/2019] Chinese Mathematical Society
Second Prize of the 11th National University Student Mathematics Competition

[08/2023] Ministry of Education, China Society for Degree and Postgraduate Education
Third Prize of "Huawei Cup" The Fifth China Graduate Student Artificial Intelligence Innovation Competition,

[04/2020] COMAP (the Consortium for Mathematics and Its Applications, USA)
Honorable Mention in 2020 Mathematical Contest In Modeling(MCM)