

Xi Beiyufei

202521210121@std.uestc.edu.cn | ORCID 0000-0001-6974-1286 | Chengdu, China

M.S. student in Optical Engineering at UESTC, with research training in experimental quantum optics, warm-atom quantum memories, optical instrumentation, and laboratory automation.

EDUCATION

M.S. in Optical Engineering	2025 - Present
<i>University of Electronic Science and Technology of China Institute of Fundamental and Frontier Sciences</i>	
B.S. in Optoelectronic Information Science and Engineering	2021 - 2025
<i>Beijing Jiaotong University School of Physical Science and Engineering</i>	
Chengdu Foreign Languages School	Earlier education
<i>Junior and senior high school</i>	
Chengdu Experimental Primary School	Earlier education
<i>Chengdu, China</i>	
Yuquan Kindergarten	Early education
<i>Chengdu, China</i>	

RESEARCH EXPERIENCE

Warm-rubidium-ensemble DLCZ quantum memory	Jul 2026 - Present
<i>UESTC Early-stage research</i>	
Studying write-read correlations, collective spin-wave storage, four-wave-mixing noise, and the experimental conditions required for improving nonclassical correlations in warm rubidium ensembles.	
Entangled-photon experiments and laboratory automation	Sep 2025 - Jun 2026
<i>UESTC Graduate research</i>	
- Built and aligned polarization-path and two-dimensional polarization-entanglement setups; balanced detector channels and performed single-photon coincidence measurements. - Calibrated liquid-crystal retarders and half-wave plates; processed data in MATLAB; modified a Python interface for a Thorlabs KLC controller and validated device communication and parameter-setting functions on hardware. - Participated in assembly and on-site validation of an EtherCAT/PLC dual-axis motion-control platform.	

RESEARCH EXPERIENCE (CONTINUED)

Laser Doppler vibrometer design and simulation

2025

Undergraduate thesis | Beijing Jiaotong University

- Designed a heterodyne Mach-Zehnder LDV architecture using a He-Ne source, acousto-optic frequency shifting, balanced detection, and a PLL-based signal-processing chain.
- Developed COMSOL ray-optics and dynamic-mesh simulations for optical paths, polarization, interference, and Doppler-frequency recovery.

Ultrasonic imaging of buried rail defects

Jun 2023 - Jun 2024

National Undergraduate Innovation Training Project | Beijing Jiaotong University

- Studied direct and full-skip total-focusing approaches, COMSOL wave-field simulation, additively manufactured rail specimens, and Verasonics-based experimental imaging.
- Co-authored the IEEE TIM article listed below on localization and quantification of buried rail-web defects.

Ternary layer-by-layer polymer solar cells

Jun 2022 - Jun 2023

National Undergraduate Innovation Training Project | Beijing Jiaotong University

- Contributed to D18-CI/Y6/MAZ-2 device-fabrication procedures and interpretation of photovoltaic and spectroscopic characterization; project data reported 17.97% power-conversion efficiency for the ternary devices.
- Co-authored the Chemical Engineering Journal article listed below.

PUBLICATIONS

H. Sun, Q. Feng, J. Li, F. Zheng, L. Peng, S. Li, S. Huang, and Y. Xibei. "Rail Web Buried Defect Location and Quantification Methods in Hybrid High-Order Guided Wave Detection." IEEE Transactions on Instrumentation and Measurement, 73, 1-12 (2024). DOI: 10.1109/TIM.2023.3338679

H. Zhou, L. Zhang, X. Ma, Y. Xibei, Y. Zheng, Z. Liu, X. Gao, J. Zhang, Z. Liu, and F. Zhang. "Approaching 18% efficiency of ternary layer-by-layer polymer solar cells with alloyed acceptors." Chemical Engineering Journal, 462, 142327 (2023). DOI: 10.1016/j.cej.2023.142327

TECHNICAL EXPERIENCE

- Introductory hands-on experience in quantum-optical alignment, SPDC entangled-photon sources, single-photon detection, and coincidence measurements.
- Python and MATLAB for data processing and instrument control; introductory integration with EtherCAT, PLC, and TCP-based control systems.
- Introductory use of Zemax, COMSOL Multiphysics, and CAD for optical and engineering design.

SELECTED HONORS

- Three-Good Student and Second-Class Academic Excellence Scholarship, Beijing Jiaotong University (2022).
- National Undergraduate Innovation Training Projects (2022, 2023).
- Best Performance Award, Beijing University Student Music Festival (2023).

ACTIVITIES

- Oboe player and former deputy principal, Beijing Jiaotong University Symphony Orchestra; former member of the School football team.