



Zhirong Tao

- Email: zhirong.tao@student.kit.edu
- Skills: MATLAB, Python, C#, Ansys Lumerical
- Language: English (IELTS 7.5)



WORK EXPERIENCE

Research Internship
10/2025 – 04/26
Vienna, Austria

CRB-Guided Sampling Design for Compressive Spectral Sensing

Institute for Theoretical Physics, TU Wien

Supervisor: Prof. Stefan Rotter

- Implemented hyperspectral compressive sensing simulations under different measurement / reconstruction schemes. **(Python)**
- Evaluated performance across metrics (reconstruction quality, robustness to noise, and sampling efficiency) to guide design choices.

Internship
04/2025 – 05/2025
Karlsruhe,
BadenWürttemberg,
Germany

Inverse-Designed Phase Plates for MCF Beam Shaping

Karlsruhe School of Optics & Photonics (KSOP)

Supervisor: Prof. Dr. Carsten Rockstuhl

- Developed an inverse-design framework using PyTorch and JAX to create 3D-printed phase plates for structured light generation through multicore fibers. **(Python)**
- Assigned each fiber core to a specific region of the target pattern, reduced cross-talk, and trained the system for robustness against bending-induced phase shifts.

Full time, On-site
07/2023 – 08/2024
Shanghai, China

Research Assistant

University of Shanghai for Science and Technology

Supervisor: Prof. Dr. Guangyu Fan

- Ultrafast Structured Light Field and Spectral Simulation. **(MATLAB)**
- Laboratory Automation and Detection Algorithm Development. **(C#)**
- Simulation and Optimization of Diffractive Deep Neural Networks. **(Python)**



EDUCATION

10/2024 – --
Karlsruhe,
BadenWürttemberg,
Germany

Optics & Photonics | Master of Science

Karlsruhe School of Optics & Photonics (KSOP)



09/2019– 06/2023
Shanghai, China

Optoelectronic Engineering | Bachelor of Engineering

University of Shanghai for Science and Technology



Thesis: Processing Algorithms for Terahertz Time-Domain Spectral Imaging

- Reconstruction and Processing of Terahertz Tomography Data. **(Python)**
- 3D Data Visualization Windows Software. **(C# WPF)**