Haoran Yang

Nanjing, China | 2963656376@qq.com | +86- 15151808372

Education

Nanjing University, Sep 2022- June 2026
BS in Microelectronics Science and Engineering

- Overall GPA: 88/ 100

MAJOR COURSE: C programing,Circuit Analysis,Analog Circuits,Digital System I,Signals and Systems,Digital Signal Processing

Technical Skills

Basic: Python, C, MATLAB, Mathematic,LaTeX, Markdown

Software-related: PyTorch, scikit-learn,git,conda

Circuit Design-related: Cadence Virtuoso, Multisim, Simulink,Verilog,Vivado

Physics-related: COMSOL, FDTD

Experience

AI-Enhanced Plasmonic Gold-Silicon Schottky Junction Photodetector Design, Sep 2024 -Present

Supervisor: XIAOLI JI, Professor, NJU

- Utilized machine learning algorithms to optimize the design of plasmonic photodetectors, improving quantum efficiency by selecting optimal structural parameters using neural networks and particle swarm optimization (PSO).
- Generated a comprehensive dataset for FDTD simulations using Lumerical API, employing Python to automate the parameter generation and simulation process.
- Built and trained MLP neural network models to predict absorption efficiency based on structural parameters, significantly reducing the design iteration time.

AI-Enhanced SNSPD-Based Cross-Correlation Spectral Flow Meter, Aug 2024 -Present

Supervisor: QINGYUAN ZHAO, Professor, NJU

- Led a team of 4 members in developing a high-resolution blood flow meter based on SNSPD (Superconducting Nanowire Single-Photon Detectors) to enhance measurement precision in medical applications.
- Designed and implemented an optical pathway using SNSPD to measure diffuse reflectance spectra of human tissue under 1064/1550 nm laser sources.
- Developed regression algorithms (LSTM, least squares, and Nth-order linear models) to extract blood flow indices from the temporal optical field's cross-correlation function.

Temperature Control System Based on GM Cryocooler, Mar 2024- Aug 2024

Supervisor: QINGYUAN ZHAO, Professor, NJU

- Designed and implemented an automated closed-loop temperature control system for superconducting quantum device testing, achieving precise control from 40K to 2.5K with 0.05K accuracy, surpassing the capabilities of commercial systems (e.g., Lakeshore Model 211).
- Developed instrument control software using SCPI instructions and RS232/USB interfaces to automate the operation of multiple devices, including Keysight DP832, Lakeshore Model 211, and Keysight SourceMeter SM2450.
- Utilized PID control combined with fuzzy logic and Kalman filtering to achieve precise temperature control and enhance system stability.

Awards

Second-Class, People's Scholarship

Outstanding Volunteer, University Level

Excellent Lecturer, Starfire Teaching Group