# Haoran Yang

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## Education

**Nanjing University(NJU),Nanjing,China**, Sept 2022- June 2026
BS in Microelectronics Science and Engineering

- Overall GPA: 88.6/100| Major GPA: 88/100| Rank: 12/56

**MAJOR COURSES:** C programming, Circuit Analysis, Analog Circuits, Digital System I, Signals and Systems, Digital Signal Processing, Analog integrated circuit

## Publication

[1]Lehuai Xu, Zirui Lu, Haoran Yang, Yina Zhou. Dual-Model Fusion for Olympic Medal Prediction: Integrating Elastic Net Regression with CatBoost Classification.8th International Conference on Big Data and Artificial Intelligence,BDAI 2025, Taicang, China, August 22-24, 2025

## Technical Skills

**Programming Languages:** Python, C, MATLAB, LaTeX

**Circuit Design-related:** Cadence Virtuoso, Multisim, verilog, Embedded Development - Keil, Vivado

**Software and Tool:** Multiphysics simulation - COMSOL, FDTD| Git, Conda

## Research Experience

**SNSPD-Based Cross-Correlation Spectral Flow Meter**, Sept 2024 - Present

*Supervisor: Professor QINGYUAN ZHAO, NJU*

- Led a team of 4 members in developing a high-resolution blood flow meter utilizing SNSPD (Superconducting Nanowire Single-Photon Detectors) to enhance measurement precision for 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) to extract blood flow indices from the temporal optical field's cross-correlation function.

**DNN - PSO algorithm for Photodetector Design Optimization**, Sept 2024 - Jan 2025

*Supervisor: Professor XIAOLI JI, NJU*

- Utilized machine learning algorithms to optimize the design of plasmonic photodetectors, improving absorb efficiency by selecting optimal structural parameters using multi-layer perceptron (MLP) and particle swarm optimization (PSO).
- Generated a comprehensive dataset for Finite-Difference Time-Domain (FDTD) simulations using Lumerical API; wrote Python scripts to automate parameter generation and simulation.
- Designed, built and trained MLP models to predict absorption efficiency of photodetectors based on structural parameters, significantly reducing the design iteration time.

## Project Experience(In-Class)

- Using cadence virtuoso to design an operational amplifier.
- Using the GLC EDA tool to realize the high-frequency circuit of a wireless microphone.
- Using YOLOv8 and machine learning algorithms to perform medical image detection on the built-in dataset of scikit-learn
- Using FPGA to realize sequential logic circuit, such as register, timer and combinational logic circuit;

## International Exchange Experience

Summer school topic on System Design. Cambridge University, UK

## Awards

**Second-Class People's Scholarship**

**NJU Outstanding Volunteer**

**Excellent Lecturer, Starfire Teaching Group**