

# Yifan Fan — Academic CV

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## RESEARCH INTEREST

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Avalanche Photodiodes (APDs), High-speed Optoelectronics Devices  
Photonic Devices, Integrated Photonics, their Applications in Sensing and Computing

## EDUCATION

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### Shanghaitech University

*M.S. in Electronic Science and Technology*

*Sep. 2023 - Jun. 2026 (expected)*

Supervisor: Prof. Baile Chen

### Shanghaitech University

*B.S. in Physics*

*Sep. 2019 - Jun. 2023*

## AWARDS & HONORS

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- **Second Academic Scholarship**, Shanghaitech University, 2025
- **Second Academic Scholarship**, Shanghaitech University, 2024

## RESEARCH EXPERIENCE

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### High-Speed InGaP/AlGaAs Visible Avalanche Photodiodes

2024 - 2025

- Conducted the fabrication process, which includes photolithography, etching, metal deposition, annealing and passivation.
- Tested device performance, which includes dark current, multiplication gain, responsivity, quantum efficiency, bandwidth, excess noise and data rate.

### Single-pixel p-graded-n junction spectrometers for Near-UV spectral range

2024

- Designed a new structure to broaden the spectral coverage into the near-UV range.
- Measured electrical and optical characteristics for spectrum construction.

## SKILLS

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### ○ Fabrication

Proficient in fabrication process, which includes photolithography, E-beam metal evaporation, PECVD oxide deposition, reactive ion etching (RIE), etc.

### ○ Characterization

Proficient in photodetector and avalanche photodiode characterization, which includes dark current, multiplication gain, responsivity, quantum efficiency, bandwidth, excess noise, etc.

Familiar with optical and electrical instruments, which includes semiconductor analyzer, lock-in amplifier, optical spectrum analyzer (OSA), wafer prober, etc.

### ○ Softwares

Silvaco TCAD, Klayout, Matlab, Python, Origin, etc

## PUBLICATIONS

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### High-Speed InGaP/AlGaAs Avalanche Photodiodes for LED-Based Visible Light Communication

Y. Fan et al., *IEEE Transactions on Electron Devices*, doi: 10.1109/TED.2025.3559492

## OTHER EXPERIENCE

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### ○ Service

#### **Introduction to World Civilizations**

*Teaching Assistant*

*fall 2024*

#### **Entrepreneurial Management**

*Teaching Assistant*

*Spring 2023*

#### **Fundamental Semiconductor Device Physics**

*Teaching Assistant*

*fall 2023*

#### **Institute of Mathematical Science**

*Management Assistant*

*fall 2020 - spring 2021*

### ○ Leadership

#### **Shanghaitech Physics Club & Society of Physics Students**

*President*

*2021 - 2023*

## SELECTED COURSES

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### ○ Graduate

Introduction to Quantum Computing (A), Semiconductor Device Physics (A-), Deep Learning (A-), Microwave Engineering (A-)

### ○ Undergraduate

Quantum Mechanics (A+), Advanced Thermodynamics and Statistical Physics (A), Methods of Mathematical Physics (A), Fundamental Semiconductor Device Physics (A-)