

# Zhanghao Sun

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## EDUCATIONS

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### STANFORD UNIVERSITY

- PhD Candidate, Electrical Engineering (5th year) 09/2018-06/2023 (expected)  
Advisor: Prof. Olav Solgaard, Co-Advisor: Prof. Gordon Wetzstein

### PEKING UNIVERSITY

B.S., Physics 09/2014-07/2018

## SELECTED PUBLICATIONS

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**Z.Sun**, Wei Ye, Jinhui Xiong, et al., “Consistent Direct Time-of-Flight Video Depth Super-Resolution”, [arXiv](#)

**Z.Sun**, J.Wang, Y.Wu, S.Nayar, “*Seeing Far in the Dark with Patterned Flash*”, [ECCV 2022](#)

**Z.Sun**, Y.Zhang, Y.Wu, D.Huo, Y.Qian, J.Wang, “*Structured Light with Redundancy Codes*”, [arXiv](#)

Sunil Pai, **Z.Sun**, et al., “Experimentally realized in situ backpropagation for deep learning in nanophotonic neural networks”, [arXiv](#)

**Z.Sun**, R.Quan, O.Solgaard, “*Resonant Scanning Design and Control for Fast Spatial Sampling*”, [Scientific Reports](#)

**Z.Sun**, D.Lindell, O.Solgaard, G.Wetzstein, “*SPADnet: Deep RGB-SPAD Sensor Fusion Assisted by Monocular Depth Estimation*”, [Optics Express](#)

For other publications, please refer to my [personal webpage](#) or [google scholar profile](#)

## SELECTED INDUSTRY EXPERIENCE

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### Meta Reality Labs

- Research Intern, On-Device Computer Vision Team 06/2022-09/2022
  - **Direct time-of-flight (dToF) processing algorithm**: Worked on a novel dToF processing framework and related dataset generation.
- Student Researcher, On-Device Computer Vision Team 09/2022-12/2022

### Snap Inc.

- Research Intern, Computational Imaging Team 06/2021-09/2021
  - **Low-light imaging**: Worked on a novel low-light imaging hardware prototype and deep learning-based reconstruction algorithm. Worked on image restoration for under display sensors.
  - **Structured light 3D imaging**: Worked on a novel structured light system and denoising algorithms

### Adaps Photonics Inc.

- Algorithm Engineer Intern 07/2019-09/2019
  - **Imaging pipeline emulation & Processing algorithm design**

## PHD RESEARCH EXPERIENCE

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### 3D Reconstruction with Time-of-Flight and RGB Sensor Fusion

- Developed a Convolution Neural Network (CNN) model for time-of-flight and RGB image sensor fusion.
- Developing more efficient processing algorithm (work in progress with Meta Reality Labs).

### Resonant Scanning System for LiDAR Application

- Proposed optimization-based design framework for resonant scanning patterns. Developed hardware prototype.
- Extended LiDAR based SLAM algorithm to adaptive scanning scenario.

### Optical Neural Network and Applications in Imaging

- For the first time, realized neural network back-propagation in optical system.
- Developing hardware prototype for phase/3D/microscopic imaging with optical neural network.

### Grating Light Valve (GLV) based Holographic Display