Zhanghao Sun

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EDUCATIONS

STANFORD UNIVERSITY

- PhD Candidate, Electrical Engineering (4th year) 09/2018-06/2023 (expected)
  Advisor: Prof. Olav Solgaard, Co-Advisor: Prof. Gordon Wetzstein
- Master of Science, Electrical Engineering 09/2018-11/2020

PEKING UNIVERSITY

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

SELECTED PUBLICATIONS

- **Selected Publications**:
  Z.Sun, D.Lindell, O.Solgaard, G.Wetzstein, "*SPADnet: Deep RGB-SPAD Sensor Fusion Assisted by Monocular Depth Estimation*" *Optics Express*
  Z.Sun, R.Quan, O.Solgaard, "*Fast Spatial Sampling with Phase Controlled Resonant Scanner*", *CLEO (oral)*
  Z.Sun, R.Quan, O.Solgaard, "*Resonant Scanning Design and Control for Fast Spatial Sampling*", *Scientific Reports*
- **Others**: Google Scholar profile: https://scholar.google.com/citations?hl=en&user=XRurc18AAAAJ

INDUSTRY EXPERIENCE

Snap Inc.

- Research Intern, Computational Imaging Team 06/2021-09/2021
  - **Mentors**: Jian Wang, Yicheng Wu, Shree Nayar
  - **Low-light imaging**: Worked on a novel low-light imaging hardware prototype and deep learning-based reconstruction algorithm, research manuscript in preparation.
  - **Under display camera**: Worked on image restoration for under display sensors.

Adaps Photonics Inc.

- Algorithm Engineer Intern 07/2019-09/2019
  - **Imaging Pipeline Emulation**: Established imaging pipeline emulator for single photon avalanche detector (SPAD) array based time-of-flight system.
  - **Processing Algorithm Design**: Depth map up-sampling, super-pixel based denoising, pile-up correction.
- Prototype Engineer Intern 07/2018-08/2018
  - **Device Design**: Simulations on SPAD device performance and sensitivity tests.

PhD RESEARCH EXPERIENCE

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.

Resonant Scanning System for LiDAR Application

- Proposed analytical and optimization-based design framework for resonant scanning patterns.
- Extended state-of-the-art point cloud processing algorithms to resonant scanning scenario.
- Developed actuation and control hardware prototype. Designed projection optics system.

Adaptive Scanning based Multi-object Tracking (in progress)

- Developing algorithms for adaptively sampled point cloud.
- Designing hardware for adaptive depth information acquisition.

Grating light valve (GLV) based holographic display

- Conducted optical experiments and simulations in hardware prototyping.