

# Qingqing Zhao

## Curriculum Vitae

Stanford, CA 94305-2004

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### Education

- since 09/20 **Ph.D. Student in Electrical Engineering**, *Stanford University, Stanford, CA.*
  - Advisor: Prof. Gordon Wetzstein
- 09/18–09/19 **Yale Visiting International Student Program**, Yale University, New Haven, CT.
  - Advisor: Prof. Owen D. Miller
- 09/16–05/20 **B.Sc. in Physics**, The University of Hong Kong, HK .
  - GPA 4.01

### Research Interests

- Machine Learning for forward and inverse problems in Physics, Learned Visual Dynamics, Computer Vision

### Research Experience

- Since 09/20 **Stanford Computational Imaging Lab**, *Stanford University, Stanford, CA.*
  - **Advisor:** Prof. Gordon Wetzstein
  - Developing general framework for solving time-dependent PDE-constrained inverse problems using Graph Neural Network and Deep Generative Models.
  - Developing general framework for solving nonlinear image processing problems leveraging deep-learning techniques like gradient-based meta-learning and implicit neural representation, etc.
- 06/22–09/22 **Mitsubishi Electric Research Laboratories.**
  - **Host:** Dr. Hassan Mansour
  - NDA (machine learning for solving real-world inverse problem)
- 01/19–09/20 **Miller's Group**, *Department of Applied Physics, Yale University, CT.*
  - **Advisor:** Prof. Owen D. Miller
  - Developed a computational method for calculating theoretical lower bounds for mode volume under full Maxwell constraints.
  - Investigated various convex optimization techniques for calculating theoretical lower bounds for nanophotonics design problems.
- 07/18–08/18 **RIKEN Research Institute**, Nishina School for Nuclear Physics, Japan.
  - Performed activation experiment for 2MeV  $^{12}\text{C}(p,)^{13}\text{N}$  reaction using RIKEN accelerators and detectors and analyzed the data
- 06/17–07/18 **Nuclear Physics Lab**, The University of Hong Kong, HK.
  - **Advisor:** Prof. Jenny Lee and Dr. Xinxing Xu

- Analyzed the experimental data of  $^{28}\text{S}$  using ROOT (a modular scientific software toolkit written in C++) and reconstructed the partial beta-delayed proton emission decay scheme of  $^{28}\text{S}$  from the experimental data.
- Utilized GET System (a generic electronics system for nuclear physics instrumentation) to test the energy resolution of the double-sided silicon strip detector (DSSD) and compared with the result obtained from the conventional electronic system.

## Publications and Posters

- **Learning to solve PDE-constrained inverse problems with graph networks**, ICML2022, Q. Zhao, D. Lindell, G. Wetzstein
- **Minimum Dielectric-Resonator Mode Volumes**, (under-review: Physical Review Letters) Q. Zhao, L. Zhang and O. D. Miller, <https://arxiv.org/abs/2008.13241>
- **Computational Bound for Nanophotonics Design**, Q. Zhao, L. Zhang and O. D. Miller, Poster Presentation, Yale Energy Sciences Institute Retreat, New Haven, CT, 2019
- **$\beta$ -decay spectroscopy of  $^{27}\text{S}$** , L. J. Sun et al. (RIBLL Collaboration), Phys. Rev. C 99, 064312, DOI: 10.1103 / PhysRevC.99.064312

## Honors & Awards

- 2016-2020 **HKU Foundation Entrance Scholarship.**
  - Scholarship for outstanding freshmen; cover four years' tuition with allowances (USD 24,000/year)
- 2017-2020 **Dr. P.M. Hui Memorial Scholarship.**
  - Scholarship for outstanding student in Physics
- 2018-2019 **HKU Worldwide Undergraduate Student Exchange Scholarship.**
  - Scholarship for study abroad programs at Yale (USD 12,000)
- 2017-2019 **HKU Summer Research Fellowship.**
  - Fellowship for conducting summer research (USD 2,000)
- 2017-2018 **Li Po Kwai Scholarship.**
  - Scholarship for top two sophomores majoring in Physics
- 2016-2018 **Lam Chi Him Memorial Prize in Physics .**
- 2016-2018 **Dean's Honors List.**
  - for students who are within the top 10% of their class

## Technical skills

**Programming**, *Python, C++, MATLAB.*  
**Tools**, *Git, Latex, Pytorch.*