Yuyao Huang

30 Shuangqing Road, Haidian District, Beijing 100084, China

（+86）152-2128-1098| huang-yy21@mails.tsinghua.edu.cn

EDUCATION

- **Tsinghua University (Sep.2021 – present)** Beijing, China

  Ph.D in Electronics Engineering (GPA: 3.57/4.0) Expected Jun, 2025

  - Research interest: silicon photonics, optical computing, deep learning
  - Relevant coursework: Advanced Optical Communication, Integrated Optoelectronics, Advanced Machine Learning

- **Shanghai Jiao Tong University (Sep. 2017 – Jul. 2020)** Shanghai, China

  Master of Engineering in Electronic Science and Technology (GPA: 3.34/4.0)

  - Research interest: optical computing and signal processing, silicon photonics
  - Relevant coursework: Optical Switch and All Optical Communication, Digital Optical Fiber Communication System, Integrated Optoelectronics and Optical Interconnects, Wave Guided Optics, Numerical Analysis, Fundamentals and Theory for Optimization Methods
  - Honors: Special-Class Scholarship of Center for Intelligent Photonics (only one), Outstanding Graduate of Shanghai Jiao Tong University (2020, Top 1%), National Scholarship for Graduate Student (2019, Top 1%), Second-Class Scholarship of Shanghai Jiao Tong University (2017-2018, 2018-2019)

- **Sichuan University (Sep. 2013 - Jun. 2017)** Chengdu, China

  Bachelor of Engineering in Electronic Information Engineering (GPA: 3.35/4.0)

  - Relevant coursework: Method of Mathematical Physics, Theory of Circuit, Signal and Systems, Computer Communication and Networks, Modern Communication Technology, Digital Signal Processing, Electromagnetic Field and Microwave Technology
  - Honors: Special Second-Class Scholarship of Sichuan University (2013-2014); Special First-Class Scholarship of Sichuan University (2014-2015); Sanxin Scholarship of Sichuan University (2014-2015)

RESEARCH EXPERIENCE

- **Silicon Photonics and Microsystem Group, Tsinghua University** Beijing, China

  Ph.D Researcher Sep.2021-present

  - Field of expertise:
    - ✓ Silicon photonics for high performance computing
    - ✓ Integrated diffractive optics
    - ✓ Deep learning

- **Huawei Technologies** Dongguan, China

  Senior Research Engineer Jul. 2020- Jul.2021

  - Field of expertise:
    - ✓ Silicon photonics for Datacenter application
    - ✓ Silicon photonics for PON
    - ✓ Optical access network

- **Center for Intelligent Photonics (CIP), State Key Laboratory of Advanced Optical Communication Systems and Networks, Shanghai Jiao Tong University** Shanghai, China

  Master Research Assistant Jul. 2017- Jun.2020

  - Field of expertise:
    - ✓ optical computing and signal processing
    - ✓ silicon photonics
    - ✓ optical interconnects
  - Working on the project *Research on Wavelength Reconfigurable Optical Interconnected High Performance Computing Systems* supported by National Natural Science Foundation of China under Grant 61605111 and the National Key Research and Development Program of China (2016YFB0200205).
    - ✓ Establishment of novel linear weighting unit based on multi-wavelength modulation and chromatic dispersion. This work has been accepted and published in *Optical Fiber Communication Conference (OFC) 2019, USA*.
    - ✓ Implementation of massive matrix manipulations based on the proposed linear weighting unit assisted by multiplexing techniques. This work has been accepted and published in *Optics Express*.
    - ✓ Establishment of optical neural networks based on proposed linear weighting unit and its further implementation as photonics integrated circuits.

PUBLICATIONS

- **Huang, Y.,** Fu, T., Huang, H., Yang, S., & Chen, H. (2022). Sophisticated deep learning with on-chip optical diffractive tensor processing. arXiv preprint arXiv:2212.09975.
- Fu, T., Zang, **Y., Huang**, Y., Du, Z., Huang, H., Hu, C., ... & Chen, H. (2023). Photonic machine learning with on-chip diffractive optics. Nature Communications, 14(1), 70.
- **Y. Huang**, W. Zhang, F. Yang and Z. He, "Optical Matrix Manipulation Based on Frequency Comb Modulation and Dispersed Time Delay, " *Optical Fiber Communication Conference (OFC 2019)* (Oral Presentation) M1B.4, Optical Society of America, San Diego (USA), Mar, 2019.
- **Y. Huang**, W. Zhang, F. Yang, J. Du, and Z. He, "Programmable matrix operation with reconfigurable time-wavelength plane manipulation and dispersed time delay," Opt. Express 27, 20456-20467 (2019).

SKILLS

- **Languages:** English (advanced), Mandarin (native).
- **Technical:**
  - Simulation for electro-optic system and devices, system designing, experiment conducting and data analysis skills
  - Skilled in using of all kinds of optical, electrical and electro-optical instruments and silicon photonic testing platform
  - Deep learning algorithm
  - Other skills: Python, Tensorflow, Keras, Matlab, Lumerical, VPI, Klayout, LaTeX, Microsoft Office