

XIAOSHENG ZHANG

Ph.D. Candidate, Department of Electrical Engineering and Computer Sciences, University of California, Berkeley
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Experience

Department of Electrical Engineering and Computer Sciences, University of California, Berkeley

Graduate Student Researcher 08/2017 – present

OURS Technology, Inc., Santa Clara, California

Optical Engineering Research Assistant 05/2019 – 08/2019

CREOL, College of Optics and Photonics, University of Central Florida

Visiting Student Researcher 06/2016 – 09/2016

Department of Precision Instrument, Tsinghua University, Beijing, China

Undergraduate Research Assistant 08/2014 – 07/2017

Research Interests

LiDAR technologies, integrated photonics, Optical-MEMS devices

Technical Skills

Optical design	Lumerical photonic simulation software, integrated photonics design, ZEMAX, Code V
Programming	Python, MATLAB, LabVIEW
Hardware	FPGA programming, PCB design
Experiments	Optical experiments, device characterization, basic micro-fabrication process skills

Education

Department of Electrical Engineering and Computer Sciences, University of California, Berkeley

Ph.D. Candidate in EECS, major in Optoelectronics 08/2017 – present

Department of Precision Instrument, Tsinghua University, Beijing, China

Bachelor of Engineering in Optical Engineering 08/2013 – 07/2017

Technische Universität München, Munich, Germany

Summer Session 08/2015

Selected Publications

1. Y. Wang, G. Zhou, X. Zhang, K. Kwon, P. Blanche, N. Triesault, K. Yu, M. C. Wu, "2D broadband beamsteering with large-scale MEMS optical phased array," *Optica* 6, 557–562 (2019).
2. X. Zhang, J. Pouls, M. C. Wu, "Laser frequency sweep linearization by iterative learning pre-distortion for FMCW LiDAR," *Optics Express* 27, 9965–9974 (2019).
3. Q. Ru, Z. E. Loparo, X. Zhang, S. Crystal, S. Vasu, P. G. Schunemann, K. L. Vodopyanov, "Self-referenced octave-wide subharmonic GaP optical parametric oscillator centered at 3 μm and pumped by an Er-fiber laser," *Optics Letters* 42, 4756–4759 (2017).
4. X. Zhang, G. Wu, M. Hu, S. Xiong, "Stabilizing carrier-envelope offset frequency of a femtosecond laser using heterodyne interferometry," *Optics Letters* 41, 4277–4280 (2016).

5. X. Zhang, W. Yi, M. Hu, Z. Yang, G. Wu, "Large-scale absolute distance measurement using inter-mode beats of a femtosecond laser," *Acta Physica Sinica* 65, 080602 (2016) (in Chinese).

Research Projects

Focal plane switch array with MEMS photonic switch for optical beam steering

EECS Department, University of California, Berkeley

Advisor: Dr. Ming C. Wu

09/2018 – present

- Designed and tested a 20×20 focal plane switch array on the integrated photonics platform.
- Beam steering in 32°×32° field of view, <0.1° beam divergence, and fast response (sub-μs).

Frequency-modulated continuous-wave (FMCW) LiDAR system

EECS Department, University of California, Berkeley

Advisor: Dr. Ming C. Wu

08/2017 – present

- Built an FMCW LiDAR system for simultaneous distance and velocity measurement.
- Investigated laser frequency linearization and phase noise compensation methods.
- Achieved sub-mm distance and mm/s level velocity detection resolution.

Grating-based MEMS optical phased array

EECS Department, University of California, Berkeley

Advisor: Dr. Ming C. Wu

08/2017 – 09/2018

- Fabricated and tested grating-based 160×160 MEMS OPA.
- Beam steering in 6.6°×4.4° field of view, fast response (5.7 μs) and low actuation voltage (10 V).

Mid-infrared optical frequency comb based on optical parametric oscillator

CREOL, College of Optics and Photonics, University of Central Florida

Advisor: Dr. Konstantin L. Vodopyanov

06/2016 – 09/2016

- Built mid-IR combs based on OPOs with PPLN and OP-GaP crystals.
- Realized MIR comb with wider than an octave spectrum (2.2 – 5.2 μm).

Stabilizing offset frequency of femtosecond laser using time-domain heterodyne interferometry

Department of Precision Instrument, Tsinghua University

Advisor: Dr. Guanhao Wu

12/2015 – 07/2017

- Proposed a novel f_{ceo} stabilization method using heterodyne interferometry.
- No nonlinear process used, not requiring high power or wide spectrum.

Femtosecond laser large-scale absolute distance measurement

Department of Precision Instrument, Tsinghua University

Advisor: Dr. Guanhao Wu

08/2014 – 12/2015

- Built a ranging system using the inter-mode beat of a femtosecond laser.
- Accuracy better than 50 μm and a theoretical range larger than 7.5 km.

Honors and Awards

Berkeley Sensor and Actuator Center (BSAC) Best Poster Award

09/2017

Outstanding Graduate of Beijing City and Tsinghua University

07/2017

Tsinghua University Outstanding Student Scholarship for Undergraduates

11/2016

Chinese National Scholarship for Undergraduates

11/2014, 11/2015