WANG, ZIHAO

zwinswang@gmail.com
2133 Sheridan Road 3.230 ⋄ Evanston, IL 60208-3109
https://winswang.github.io ⋄ last updated: October 28, 2017

EDUCATION

Ph.D. student in Computer Science *09/2015 - present*
Northwestern University, advised by Prof. Oliver Cossairt

Cumulative GPA: 3.9/4

B.S. in Optics with Honors *09/2011 - 06/2015*
Zhejiang University, advised by Prof. Ming Ronnier Luo, George Barbastathis (MIT)
Thesis: Gradient Index (GRIN) lens simulations using Hamiltonian ray tracing and Wigner distribution function.

Overall GPA: 3.9/4

PROFESSIONAL PREPARATION

Light Labs Inc. 04/2017 - 08/2017
Computational Imaging Research Intern *Palo Alto, CA*

· Contributed to deployment of color calibration software. Improved color rendering performance.
· Homography estimation with radial distortion.

RESEARCH EXPERIENCE

Northwestern University 01/2016-present
Graduate research assistant *Evanston, IL*

Compressive video
· Designed and implemented optical imaging system (in-line holography, coded exposure)
· Realized codes for compressive holography, optimization using two-step iterative shrinkage thresholding.
· Developed and implemented an algorithm for subsampled phase retrieval.

Looking through scattering media
· Implemented Monte Carlo simulation for imaging through scattering media.
· Developed time-gating imaging experiments.

Image stitching
· Implemented Scale-Invariant Feature Transform (SIFT) on GPU.
· Developed a tone mapping algorithm using k-means clustering and high dynamic range bracketed exposures.

Massachusetts Institute of Technology 02/2015 - 05/2015
Visiting undergraduate student *Cambridge, MA*

· Developed a Hamiltonian ray-tracing algorithm for GRadient INdex (GRIN) lens simulation
· Leveraged Wigner distribution function for scattering modulation.

Zhejiang University 03/2012 - 01/2015
Undergraduate research assistant *Hangzhou, China*

· Acquired BRDF data for surface appearance (gloss, glint, coarseness) analysis.

- Analyzed surface effects using statistical methods (multi-dimensional scaling, high-dimension data fitting)
- Rendered in-door environment with variable color temperature using 3Ds Max.

TEACHING

EECS 395/495 Intro to Computational Photography (TA) Fall 2016
EECS 110 Intro to Python (TA) Winter 2017

SELECTED AWARDS & GRANTS

Conference Travel Grant, EECS & The Graduate School, Northwestern University ($ 900) 2017
CKC-Harvard-MIT undergraduate thesis fellowship, Zhejiang University ($ 10,000) 2014-2015
Excellent Student Awards, Zhejiang University 2011-2013

TECHNICAL SKILLS

Programming Languages MATLAB, Python, C/C++, Javascript, WebGL
Software 3Ds Max, SPSS

SERVICE

Reviewer OSA: Optics Express, Applied Optics, Journal of the Optical Society of America A 2017
IEEE: ICASSP 2017
Student volunteer IEEE International Conference on Computational Photography 2016, 2017
Student council member Computer Science PhD Student Advocacy Council (CSPAC), EECS Dept., Northwestern Univ. 2017

PUBLICATIONS

Refereed Journals

- **Gloss evaluation from soft and hard metrologies** Z. Wang, L. Xu, Y. Hu, F. Mirjalili, and M. R. Luo, J. Opt. Soc. Am. A 34, 1679-1686 (2017) (doi: 10.1364/JOSAA.34.001679)
- **Subsampled phase retrieval for temporal resolution enhancement in lensless on-chip holographic video** D. Ryu, Z. Wang, K. He, G. Zheng, R. Horstmeyer, and O. Cossairt, Biomedical Optics Express 8, 1981-1995 (2017) (doi: 10.1364/BOE.8.001981)
- **Compressive holographic video** Z. Wang, L. Spinoulas, K. He, L. Tian, O. Cossairt, A. K. Katsaggelos, and H. Chen, Optics Express 25, 250-262 (2017) (doi: 10.1364/OE.25.000250)
- **Looking into Special Surface Effects: Glint Impression and Diffuse Coarseness** Z. W. Wang, M. R. Luo, Coloration Technology, 132: 153-161 (2016) (doi: 10.1111/cote.12203)

Conference Proceedings

- **Dictionary-based phase retrieval for space-time super resolution using lens-free on-chip holographic video** Z. Wang, Q. Dai, D. Ryu, K. He, R. Horstmeyer, A. Katsaggelos, O. Cossairt, in OSA Imaging and Applied Optics Congress, 2017. (Oral presentation, June 27, San Francisco, USA)
- **4D Tracking of Biological Samples using Lens-free On-chip In-line Holography** Z. Wang, D. Ryu, K. He, O. Cossairt, A. Katsaggelos, in Digital Holography & 3-D Imaging, 2017. (Oral presentation, May 30, Jeju Island, South Korea)
- **High-speed holographic imaging using compressed sensing and phase retrieval** Z. Wang, D. Ryu, K. He, R. Horstmeyer, A. Katsaggelos, O. Cossairt, in SPIE DCS 10222-15, 2017. (Oral presentation, Apr. 9 , Anaheim, USA)