

# WANG, ZIHAO

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<https://winswang.github.io> ◊ Last updated: May 24, 2019

## EDUCATION

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### Northwestern University

2015 - present

*Ph.D. in Computer Science, anticipated 06/2020*

*Evanston, IL*

Qualifier: Computational video sensing for space-time resolution enhancement

Committee: Oliver Cossairt (advisor), Aggelos Katsaggelos, Roarke Horstmeyer, Dikpal Reddy

### Zhejiang University

2011 - 2015

Chu Ko-chen Honors College

*Hangzhou, China*

*B.S. in Optical Science and Engineering*

GPA: 3.9/4

## INDUSTRIAL EXPERIENCE

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### Apple Inc.

01/2019 - 05/2019

*Engineering intern*

*Cupertino, CA*

- Panel Process and Optics (PPO-Optics).

### Light Labs Inc.

04/2017 - 08/2017

*Research intern*

*Palo Alto, CA*

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

## RESEARCH EXPERIENCE

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### Northwestern University

09/2015-present

*Graduate research assistant, Dr. Oliver Cossairt & Dr. Aggelos Katsaggelos*

*Evanston, IL*

- Gained theoretical & algorithmic knowledge in image formation, computer vision, optimization (compressed sensing, machine learning), etc.
- Gained hardware experience in optical imaging system designs, e.g. digital holography, coded aperture/exposure technique, projector-camera system, microscopy etc.

### Microsoft Research

06/2018 - 09/2018

*Research intern, Dr. Sing Bing Kang & Dr. Sudepta Sinha*

*Redmond, WA*

- Designed a privacy-preserving action recognition framework using a lens-free coded aperture camera.
- Enhanced skills in C++ programming; Gained knowledge in deep learning and action recognition.

### Massachusetts Institute of Technology

02/2015 - 05/2015

*Visiting undergraduate student, Dr. George Barbastathis*

*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, Dr. Ming Ronnier Luo*

*Hangzhou, China*

- Designed psychophysical experiments for surface appearance studies, i.e. gloss, glint, coarseness.

- Gained experience in BRDF data acquisition and statistical analysis.

## SELECTED AWARDS & SCHOLARSHIPS

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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

## TEACHING

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EECS 395/495 Intro to Computational Photography (TA)	Fall 2016
EECS 110 Intro to Python (TA)	Winter 2017, 2018

## COMPUTER SKILLS

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<b>Development</b>	Python, C/C++, Javascript, WebGL
<b>Analytics</b>	Mathworks MATLAB, IBM SPSS
<b>Graphics</b>	Adobe Illustrator/Photoshop, Autodesk 3Ds Max

## SERVICE & ACTIVITIES

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<b>Leadership</b>	Member of Computer Science PhD Student Advocacy Council (CSPAC), Northwestern University 2017; Founder of Special Interest Group in Chinese Theater (SIGTheater)
<b>Student volunteer</b>	IEEE International Conference on Computational Photography (ICCP) 2016, 2017; Color Technology for Museum Applications Workshop 2014; CIE Lighting Quality and Energy Efficiency 2012
<b>Reviewer</b>	<i>OSA</i> : Optics Express, Applied Optics, Journal of the Optical Society of America A; <i>IEEE</i> : Transactions on Computational Imaging; <i>IS&amp;T</i> Journal of Imaging Science and Technology

## PUBLICATIONS

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### Refereed journal/conference/workshop papers

1. **Privacy-preserving action recognition using coded aperture videos** Z. W. Wang, V. Vineet, F. Pittaluga, S. Sinha, O. Cossairt, S. B. Kang, The Bright and Dark Sides of Computer Vision: Challenges and Opportunities for Privacy and Security (CV-COPS), in conjunction with IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2019. (Oral presentation. <https://arxiv.org/abs/1902.09085>)
2. **Computational multifocal microscopy** K. He, Z. Wang, X. Huang, X. Wang, S. Yoo, P. Ruiz, I. Gdor, A. Selewa, N. J Ferrier, N. Scherer, M. Hereld, A. Katsaggelos, O. Cossairt, Biomedical Optics Express 9, 6477-6496 (2018) (doi: 10.1364/BOE.9.006477)
3. **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)
4. **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)
5. **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)
6. **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)

## Pre-prints and non-refereed presentations

1. **Event-driven video frame synthesis** Z. Wang, W. Jiang, A. Katsaggelos, O. Cossairt, arXiv (2019) (<http://arxiv.org/abs/1902.09680>)
2. **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)
3. **4D tracking of biological samples using lens-free on-chip in-line holography** Z. Wang, D. Ryu, K. He, A. Katsaggelos, O. Cossairt, in Digital Holography & 3-D Imaging, 2017. (Oral presentation, May 30, Jeju Island, South Korea)
4. **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)