WANG, ZIHAO (WINSTON)

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EDUCATION

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

Cumulative GPA: 3.9/4

B.S. in Optics with Honors *Sep. 2011 - Jun. 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. Apr. - Aug. 2017
Computational Imaging Research Intern *Palo Alto, CA*

Camera calibration:

- Homography estimation with radial distortion.
- Camera spectral sensitivity estimation.
- Time-of-flight sensor calibration.

RESEARCH

Computational imaging

Compressive video Jan. - Oct. 2016
Project leader *Evanston, IL*

- This project exploits the feasibility of efficient space-time sampling. By using coded exposure and compressive holography, we demonstrate schemes for recovering 4D moving volume (3D location with time) from a single image. Related techniques, e.g. digital refocusing, particle detection and tracking, are developed.

Computer vision *image stitching, object recognition, ray tracing etc.*

Monte Carlo simulations for light transport Jul. 2016 - present
Participant *Evanston, IL*

- This project uses Monte Carlo method to simulate time-resolved light transport behavior through scattering media.

Image stitching with tone mapping Jan. - Mar. 2016
Leader, course project *Evanston, IL*

- This project tackles tone mapping problem in image stitching. We used k-mean clustering and HDR tone mapping to improve image stitching results.

Color science

Surface appearance evaluation from soft and hard metrologies Mar. 2014 - Jun. 2016
Project leader *Hangzhou, China*

· This project leverages modern instrumentation to evaluate surface appearance and effects, e.g., gloss, glint and coarseness. Soft metrology includes psychophysical experiments. Hard metrology includes goniometer, gloss meter and BRDF measuring device.

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
CS PhD student advocacy council Computer Science Division, 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)