

XIANG HUANG

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- POSITIONS HELD **Mathematics & Computer Science, Argonne National Lab.** LEMONT, IL, USA
ASSISTANT COMPUTER SCIENTIST 11/2017 - current
- Mathematics & Computer Science, Argonne National Lab.** LEMONT, IL, USA
POSTDOC Advisor: Dr. *Mark Hereld* & Dr. *Nicola Ferrier* 11/2015 - 10/2017
- Department of EECS, Northwestern University** EVANSTON, IL, USA
POSTDOC Advisor: Prof. *Oliver Cossairt* 04/2013 - 11/2015
- Hollywood Research Lab, Nokia Inc.** SANTA MONICA, CA, USA
RESEARCH INTERN Advisor: Dr. *Gang Hua* & Dr. *Lance Williams* 03/2010 - 06/2010
- Advanced Technology Labs, Adobe Systems Inc.** SAN JOSE, CA, USA
RESEARCH INTERN Advisor: Dr. *Sunil Hadap* 06/2009 - 08/2009
- Department of EECS, Northwestern University** EVANSTON, IL, USA
RESEARCH ASSISTANT Advisor: Prof. *Jack Tumblin* 09/2006 - 03/2013
CO-INSTRUCTOR AND CO-DESIGNER of the course “Computational Photography: What and How?”. 03/2009 - 06/2009
- EDUCATION **Northwestern University, USA** 09/2006 - 03/2013
Ph.D. in Computer Science Advisor: *Jack Tumblin* GPA: **4.0/4.0**
Thesis: “Measurement & Synthesis of Illumination in Photographic Scenes”
- McMaster University, CANADA** 01/2004 - 06/2006
M.A.Sc. in Electrical & Computer Engineering Advisor: *Xiaolin Wu* GPA: **4.0/4.0**
Thesis: “Multiple Description Lattice Vector Quantization”
- Huazhong Univ. of Science & Technology, CHINA** 09/1999 - 06/2003
B.E. in Electronics & Information Engineering Rank: **1st/480**, GPA: **93.6/100**
- SELECTED **Refereed Journal Articles:**
PUBLICATIONS, INVITED TALKS AND PATENTS
- Kuan He, Zihao Wang, **Xiang Huang**, Xiaolei Wang, Seunghwan Yoo, Pablo Ruiz, Itay Gdor, Alan Selewa, Nicola Ferrier, Norbert Scherer, Mark Hereld, Aggelos Katsaggelos, and Oliver Cossairt, “Computational Multifocal Microscopy,” *Biomedical Optics Express*, Vol. 9, Issue 12, pp. 6477-6496, Dec 2018.
 - Kuan He, **Xiang Huang**, Xiaolei Wang, Seunghwan Yoo, Pablo Ruiz, Itay Gdor, Nicola Ferrier, Norbert Scherer, Mark Hereld, Aggelos Katsaggelos, and Oliver Cossairt, “Design and Simulation of a Snapshot Multi-focal Interferometric Microscope,” *Optics Express* 26, 27381-27402, 2018
 - **Xiang Huang**, Erich Uffelman, Oliver Cossairt, Marc Walton, and Aggelos Katsaggelos, “Computational Imaging for Cultural Heritage: Recent developments in spectral imaging, 3-D surface measurement, image relighting, and X-ray mapping,” in *IEEE Signal Processing Magazine (SPM)*, vol. 33, no. 5, pp. 130-138, Sep 2016

Refereed Conference Proceedings:

- **Xiang Huang**, Stefan Wild, and Zichao Di, “Calibrating Sensing Drift in Tomographic Inversion,” in *Proc. of the International Conference on Image Processing (ICIP’2019)*, Sep 2019
- **Xiang Huang**, Kuan He, Seunghwan Yoo, Oliver Cossairt, Aggelos Katsaggelos, Nicola Ferrier, and Mark Hereld, “An Interior Point Method for Nonnegative Sparse Signal Reconstruction,” in *Proc. of the International Conference on Image Processing (ICIP’2018)*, Oct 2018
- Seunghwan Yoo, Pablo Ruiz, **Xiang Huang**, Kuan He, Xiaolei Wang, Itay Gdor, Alan Selewa, Matthew Daddysman, Nicola Ferrier, Mark Hereld, Norbert Scherer, Oliver Cossairt, and Aggelos Katsaggelos, “Bayesian Approach for Automatic Joint Parameter Estimation in 3D Image Reconstruction from Multi-focus Microscope,” in *Proc. of the International Conference on Image Processing (ICIP’2018)*, Oct 2018
- Seunghwan Yoo, Pablo Ruiz, **Xiang Huang**, Kuan He, Nicola Ferrier, Mark Hereld, Alan Selewa, Matthew Daddysman, Norbert Scherer, Oliver Cossairt, and Aggelos Katsaggelos, “3D Image Reconstruction from Multi-focus Microscope: Axial Super Resolution and Multiple Frame Processing,” in *Proc. of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP’2018)*, Apr 2018
- Xiaolei Wang, **Xiang Huang**, Itay Gdor, Matthew Daddysman, Hannah Yi, Alan Selewa, Theresa Haunol, Mark Hereld, and Norbert F. Scherer, “Snapshot 3D tracking of insulin granules in live cells,” *SPIE Photonics West: Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XXV*, Jan 2018
- Chia-Kai Yeh, Nathan Matsuda, **Xiang Huang**, Fengqiang Li, Marc Walton, and Oliver Cossairt, “A Streamlined Photometric Stereo Framework for Cultural Heritage,” in *Proc. of the 14th European Conference on Computer Vision (ECCV’2016)*, *Workshop on Computer Vision for Art Analysis*, pp. 738-752, Oct 2016
- Oliver Cossairt, Kuan He, Ruibo Shang, Nathan Matsuda, Manoj Sharma, **Xiang Huang**, Aggelos Katsaggelos, Leonidas Spinoulas, and Seunghwan Yoo, “Compressive Reconstruction for 3d Incoherent Holographic Microscopy,” in *Proc. IEEE International Conference on Image Processing (ICIP’2016)*, Sep 2016
- **Xiang Huang**, Marc Walton, Greg Bearman, and Oliver Cossairt, “Near Light Correction for Image Relighting and 3D Shape Recovery,” in *Proc. IEEE Digital Heritage (DH’2015)*, vol. 1, pp. 215-222, Sep 2015
- Oliver Cossairt, **Xiang Huang**, Nathan Matsuda, Harriet Stratis, Mary Broadway, Jack Tumblin, Greg Bearman, Dale Kronkright, Eric Doehne, Aggelos Katsaggelos, and Marc Walton, “Surface Shape Studies of the Art of Paul Gauguin,” in *Proc. IEEE Digital Heritage (DH’2015)*, vol. 2, pp. 13-20, Sep 2015
- **Xiang Huang** and Oliver Cossairt, “Dictionary Learning based Color Demosaicing for Plenoptic Cameras,” in *Proc. IEEE International Workshop on Computational Cameras and Displays (CCD’2014)*, pp. 455-460, Jun 2014
- **Xiang Huang**, Gang Hua, Jack Tumblin, and Lance Williams, “What Characterizes a Shadow Boundary under the Sun and Sky?” in *Proc. IEEE International Conf. on Computer Vision (ICCV’2011)*, pp. 898-905, Nov 2011

- Ankit Mohan, **Xiang Huang**, Ramesh Raskar, and Jack Tumblin, “Sensing Increased Image Resolution Using Aperture Masks,” in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’2008)*, pp. 1-8, Jun 2008
- **Xiang Huang**, Ankit Mohan, and Jack Tumblin, “Deep Shadows in a Shallow Box,” in *Proc. of SPIE Electronic Imaging Conf. (EI’2008)*, Vol.#6810, pp. 1-9, Feb 2008.
- **Xiang Huang** and Xiaolin Wu, “Optimal Index Assignment for Multiple Description Lattice Vector Quantization,” in *Proc. of IEEE Data Compression Conf. (DCC’2006)*, pp. 272-281, Mar 2006.

Non-refereed Publications, Abstracts and Poster Presentations:

- **Xiang Huang**, Alan Selewa, Xiaolei Wang, Matthew Daddysman, Itay Gdor, Rosemarie Wilton, Kenneth Kemner, Seunghwan Yoo, Aggelos Katsaggelos, Kuan He, Oliver Cossairt, Nicola Ferrier, Mark Hereld, and Norbert Scherer, “3D Snapshot Microscopy of Extended Objects,” arXiv:1802.01565, 2018.
- Matthew Daddysman, Alan Selewa, **Xiang Huang**, Kuan He, Xiaolei Wang, Itay Gdor, Toan Huynh, Justin Jureller, Oliver Cossairt, Nicola Ferrier, Mark Hereld, and Norbert Scherer, “Towards 3-D Snapshot Volumetric Imaging: Novel Methods of Microscopy and Image Reconstruction to Achieve 3-D Volumes with Single Snapshot Exposures,” 52nd American Chemical Society National Meeting (ACS’2016), Aug 2016
- Chia-Kai Yeh, Nathan Matsuda, **Xiang Huang**, Fengqiang Li, Marc Walton, and Oliver Cossairt, “Uncalibrated Photometric Stereo with a Witness Camera,” International Conference on Computational Photography (ICCP’2016) (poster), May 2016
- Johanna Salvant, Marc Walton, Dale Kronkright, Francesca Casadio, Chia-Kai Yeh, **Xiang Huang**, Emeline Pouyet, and Oliver Cossairt, “Investigation of the phenomenon of erupting micro-protrusions on the surface of oil paintings by Georgia O’Keeffe,” International Conference on Computational Photography (ICCP’2016) (poster), May 2016
- **Xiang Huang**, Oliver Cossairt and Marc Walton, “Practical Shape Recovery from Near-light and Near-camera Photometric Stereo,” in *International Conf. on Computational Photography (ICCP’2015)* (poster), Apr 2015
- **Xiang Huang** and Xiaolin Wu, “Optimal Design of Multiple Description Lattice Vector Quantizers,” arXiv:cs/0609123, 2006.

Patents:

- Sunil Hadap and **Xiang Huang**, “System and Method for Decomposing an Image into Reflectance and Shading Components,” US-Patent: US8411990B1, Apr 2013

PROFESSIONAL Program Committee of International Conference on Computational Photography (ICCP’2019,
ACTIVITIES ICCP’2017, ICCP’2016)

Program Committee of the International Conference on Applications and Systems of Visual Paradigms (VISUAL’2018)

Program Committee of IEEE International Workshop on Broadcast and User-generated Content Recognition and Analysis (BRUREC’2013)

Reviewer for Journals: IEEE Transactions on Pattern Analysis and Machine Intelligence

(PAMI), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), IEEE Transactions on Imaging Processing (TIP), IEEE Transactions on Computational Imaging (TCI), IEEE MultiMedia, Neurocomputing etc.

HONORS AND AWARDS	Natural Science & Engr. Research Council of Canada Postgraduate Scholarship	<i>2008-2010</i>
	Helen and Robert J. Piros Fellowship, Northwestern University	<i>2007</i>
	Walter P. Murphy Fellowship, Northwestern University	<i>2006</i>
	Outstanding Thesis Research, McMaster University	<i>2006</i>
	Model of Outstanding Students, Huazhong U. of Sci & Tech (20 out of 30,000)	<i>2001</i>
	National Mathematical Contest in Modeling, China, Second Prize	<i>2002</i>
	National Olympic Physics Contest, China, First Prize	<i>1998</i>
	Provincial Olympic Mathematics Contest, Hunan, China, First Prize	<i>1998</i>
	National Olympic Mathematics Contest, China, Second Prize	<i>1997</i>