
SPECIALIZATION AND SKILLS	Augmented reality, 3D vision and graphics, depth estimation, sensor fusion, scene understanding Low-level vision, computational photography and imaging, image and video processing Numerical optimization, machine learning, deep learning Proficient in C++, Python, and MATLAB Proven track record of first and senior-authored publications in top-tier CV and ML conferences
EDUCATION	<p>University of British Columbia, Vancouver, BC Sept. 2013 - May 2018 Ph.D. in Computer Science Thesis: Exploiting Temporal Structures in Computational Photography</p> <p>Tsinghua University, Beijing, China Sept. 2009 - July 2013 B.Eng. in Computer Science Thesis: Image Classification with Outer Product Features</p>
WORK EXPERIENCE	<p>Meta Reality Labs, Redmond, WA Sept. 2018 - Present <i>Staff Research Scientist and Manager</i> at 3D Sensing Group. - Research and development of CV and ML algorithms and computational imaging systems for machine perception in AR and VR. - Lead a team of researchers, engineers, and interns to conduct research, prototyping, and production of 3D vision solutions. Drive the definition of camera and depth system architecture. - Shipped MR features to Meta's VR line of products including Quest Pro, and more to come.</p> <p>University of British Columbia, Vancouver, BC Sept. 2013 - May 2018 <i>Research Assistant</i> at Imager Lab. Advisor: Prof. Wolfgang Heidrich - Designed optimization methods for solving inverse problems in vision and graphics. - Derived image formation models for consumer and scientific imagers and optics. - Presented research publications at CVPR 2015-2018.</p> <p>Stanford University, Stanford, CA Feb. 2017 - Mar. 2017 <i>Visiting Researcher</i> at Computational Imaging Lab. Advisor: Prof. Gordon Wetzstein - Initiated project on learning depth and material from time-of-flight measurements. - Devised adversarial and depth-tailored deep learning architectures. - Presented the research outcome at Stanford SCIEN affiliated meetings.</p> <p>Adobe Research, Seattle, WA Mar. 2016 - July 2016 <i>Research Intern</i> at Creative Technologies Lab. Advisors: Dr. Oliver Wang, Dr. Jue Wang - Developed deep learning frameworks for video deblurring. - Shipped the Camera Shake Deblur effect to Adobe After Effects. - Presented as spotlight oral in CVPR 2017 and poster at ICCP 2017.</p> <p>KAUST, Thuwal, Saudi Arabia Oct. 2014 - Jan. 2015 <i>Visiting Researcher</i> at Visual Computing Center. Advisor: Prof. Wolfgang Heidrich - Developed deconvolution algorithms utilizing sparse and cross-channel image priors. - Applied the method to aberration correction in imaging through diffractive optical elements.</p> <p>Tsinghua University, Beijing, China Feb. 2013 - June 2013 <i>Research Assistant</i> at State Key Lab of Intelligent Tech. & Sys. Advisor: Prof. Xiaolin Hu - Devised and implemented a nonlinear feature quantization model based on sparse coding. - Evaluated against image classification tasks on various datasets.</p>

Microsoft Research, Beijing, China Sept. 2012 - Nov. 2012

- Research Intern* at Internet Graphics Group. Advisor: Dr. Stephen Lin
- Developed techniques for robust shape-from-shading in the presence of textures.
 - Designed an iterative 3D reconstruction framework leveraging defocus and shading cues.
 - Presented at CVPR 2013 and TIP 2016.

Microsoft Research, Beijing, China Feb. 2012 - Sept. 2012

- Software Engineering Intern* at Innovation Engineering Group. Mentor: Mr. Xiao Liang
- Developed image blending and color calibration algorithms with Image Composite Editor.
 - Shipped the image processing pipeline for Microsoft's Gigapixel Camera.
 - Collaborated with Dunhuang Academy on the eHeritage program.

PUBLICATIONS

Consistent Direct Time-of-Flight Video Depth Super-Resolution

Zhanghao Sun, Wei Ye, Jinhui Xiong, Gyeongmin Choe, Jialiang Wang, **Shuochen Su**, and Rakesh Ranjan

arXiv preprint arXiv:2211.08658, 2022

Toward Practical Monocular Indoor Depth Estimation

Cho-Ying Wu, Jialiang Wang, Michael Hall, Ulrich Neumann, and **Shuochen Su**

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

Deep End-to-End Time-of-Flight Depth Imaging

Shuochen Su, Felix Heide, Gordon Wetzstein, and Wolfgang Heidrich

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018

Deep Video Deblurring for Hand-held Cameras

Shuochen Su, Mauricio Delbracio, Jue Wang, Guillermo Sapiro, Wolfgang Heidrich, and Oliver Wang

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017

(Spotlight presentation, acceptance rate 5.5%)

Material Classification Using Raw Time-of-Flight Measurements

Shuochen Su, Felix Heide, Robin Swanson, Jonathan Klein, Clara Callenberg, Matthias Hullin, and Wolfgang Heidrich

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016

Rolling Shutter Motion Deblurring

Shuochen Su and Wolfgang Heidrich

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015

Bayesian Depth-from-Defocus with Shading Constraints

Chen Li, **Shuochen Su**, Yasuyuki Matsushita, Kun Zhou, and Stephen Lin

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013

Bayesian Depth-from-Defocus with Shading Constraints

Chen Li, **Shuochen Su**, Yasuyuki Matsushita, Kun Zhou, and Stephen Lin

IEEE Transactions on Image Processing (TIP), 2016

Computational Imaging Using Lightweight Diffractive-refractive Optics

Yifan Peng, Qiang Fu, Hadi Amata, **Shuochen Su**, Felix Heide, and Wolfgang Heidrich

Optics Express, 2015

Modeling Outer Products of Features for Image Classification

Peng Qi, **Shuochen Su**, and Xiaolin Hu

IEEE International Conference on Advanced Computational Intelligence, 2013

PATENTS

8 U.S. patents granted: 11,195,291, 11,182,914, 11,010,911, 10,972,715, 10,929,997, 10,755,173, 10,534,998, 10,289,951

6 U.S. patents pending: 17/504,004, 17/074,495, 17/069,709, 17/230,109, 17/138,537, 17/329,888

PROFESSIONAL
ACTIVITIES *Program Committee, CVPR, ICCV, ECCV, ACCV, 3DV
Reviewer, WACV, ICLR, NeurIPS, SIGGRAPH Asia, EG, TOG, TPAMI, TIP, TCI, SPL, PR,
CGF, OE, NEUCOM, SPIC etc.
Membership, IEEE, ACM SIGGRAPH*

AWARDS SCIEN 2017 Distinguished Poster Award, Stanford University, 2017
CVPR 2017 Outstanding Reviewer Award, IEEE, 2017
Graduate Student Travel Award, UBC, 2017
Faculty of Science Graduate Award, UBC, 2014-17
Award of Excellence, Microsoft Research Asia, 2013

REFERENCES Available upon request.