

Sizhuo Ma

sizhuoma@gmail.com

RESEARCH INTEREST

Computer Vision, Computational Imaging

EDUCATION

- | | |
|---------------------------|--|
| Dec. 2016 –
Jan. 2022 | Ph.D. of COMPUTER SCIENCES, University of Wisconsin-Madison
Thesis: Resolving Motion with Single-Photon Cameras |
| Aug. 2014 –
Dec. 2016 | M.S. of COMPUTER SCIENCES, University of Wisconsin-Madison
GPA: 3.92/4.00 |
| Sep. 2010 –
July. 2014 | B.S. of COMPUTER SCIENCE AND ENGINEERING, Shanghai Jiao Tong University, China
GPA: 90.3/100 |

RESEARCH EXPERIENCE

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| Feb. 2022 –
<i>Present</i> | Snap Research
<i>Research Scientist, Computational Imaging Team</i> |
| May. 2016 –
Jan. 2022 | WISION Lab, University of Wisconsin-Madison
<i>Graduate Research Assistant</i>
Advisor: Professor Mohit Gupta <ul style="list-style-type: none">Develop novel solutions to motion-related computer vision problems (<i>e.g.</i>, scene flow, burst photography) with computational camera designs (<i>e.g.</i>, light field, structured light, single-photon cameras). |
| May. 2020 –
Aug. 2020 | Snap Research
<i>Research Intern, Computational Imaging Team</i>
Supervisor: Shree Nayar |
| Jan. 2016 –
May. 2016 | Living Environments Lab, University of Wisconsin-Madison
<i>Graduate Research Assistant</i>
Advisor: Professor Kevin Ponto <ul style="list-style-type: none">Built prototypes for AR applications on mobile devices, using hardware/software platforms including Google Project Tango, Vuforia, and Unity. |
| Sep. 2012 –
Jun. 2014 | Visual Media and Data Management Lab, Shanghai Jiao Tong University
<i>Undergraduate Research Assistant</i>
Advisor: Professor Bin Sheng <ul style="list-style-type: none">Implemented a real-time, monocular, dense SLAM system in C++ as a platform for AR applications. |

TEACHING EXPERIENCE

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| Sep. 2015 –
Jan. 2016 | Teaching Assistant
<i>CS301: Introduction to Data Programming (Python)</i>
<i>University of Wisconsin-Madison</i> |
| Sep. 2014 –
May. 2015 | Teaching Assistant
<i>CS302: Introduction to Programming (Java)</i>
<i>University of Wisconsin-Madison</i> |

PUBLICATIONS

- 2023 **Sizhuo Ma**, Jian Wang, Wenzheng Chen, Suman Banerjee, Mohit Gupta, Shree Nayar. QfaR: Location-Guided Scanning of Visual Codes from Long Distances. *International Conference on Mobile Computing and Networking (MobiCom 2023)* (To appear)
- 2023 Brevin Tilmon, Zhanghao Sun, Sanjeev Jagannatha Koppal, Yicheng Wu, Georgios Evangelidis, Ramzi Zahreddine, Gurunandan Krishnan, **Sizhuo Ma***, Jian Wang*. Energy-Efficient Adaptive 3D Sensing, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2023)* (To appear)
*Co-corresponding author
- 2023 **Sizhuo Ma**, Paul Mos, Edoardo Charbon, Mohit Gupta. Burst Vision Using Single-Photon Cameras. *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2023)*
- 2022 Varun Sundar, **Sizhuo Ma**, Aswin Sankarnarayanan, Mohit Gupta. Single-Photon Structured Light. *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022)*
- 2020 **Sizhuo Ma**, Mohit Gupta. Inertial Safety from Structured Light. *European Conference on Computer Vision (ECCV 2020)*
- 2020 **Sizhuo Ma**, Shantanu Gupta, Arin C. Ulku, Claudio Bruschini, Edoardo Charbon, Mohit Gupta. Quanta Burst Photography. *SIGGRAPH 2020*
- 2019 **Sizhuo Ma**, Brandon M. Smith, Mohit Gupta. Differential Scene Flow from Light Field Gradients. *International Journal on Computer Vision (IJCV) Special Issue on Best Papers of ECCV 2018*
- 2018 **Sizhuo Ma**, Brandon M. Smith, Mohit Gupta. 3D Scene Flow from 4D Light Field Gradients. *European Conference on Computer Vision (ECCV 2018)* [**Oral presentation**]

PATENTS

Location-Guided Scanning of Visual Codes

Inventors: Sizhuo Ma, Jian Wang, Mohit Gupta, Shree K. Nayar, US 2022/0262089 A1

Systems, Methods, and Media for High Dynamic Range Quanta Burst Imaging

Inventors: Mohit Gupta, Sizhuo Ma, **Patent granted**, US Patent 11170549

Systems, Methods, and Media for Determining Object Motion in Three Dimensions from Light Field Image Data

Inventors: Mohit Gupta, Sizhuo Ma, Brandon Smith, **Patent granted**, US Patent 10706564

HONORS AND AWARDS

- 2022 OUTSTANDING GRADUATE-STUDENT RESEARCH AWARD, UW-MADISON COMPUTER SCIENCES DEPARTMENT
- 2020 SNAP RESEARCH FELLOWSHIP
- 2012 SHANGHAI MUNICIPAL SCHOLARSHIP
- 2011 – 2012 SJTU ACADEMIC EXCELLENCE SCHOLARSHIP

SKILLS

Programming Languages: Python, MATLAB, C, C++, Java, C#,
Operating Systems: Windows, Linux, Android
Tools/Libraries: OpenCV, PyTorch, CUDA, OpenGL, Unity, Blender
Languages: English (Proficient), Chinese (Native), Japanese (JLPT N1)