

# WEI DONG

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## EDUCATION

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| <b>Carnegie Mellon University, Pittsburgh, PA, USA</b><br>PhD in Robotics, Robotics Institute, School of Computer Science | <i>Aug. 2018 - Jun. 2023</i>  |
| <b>Peking University, Beijing, China</b><br>Master of Science, Key Laboratory of Machine Perception, School of EECS       | <i>Sept. 2015 - Jul. 2018</i> |
| <b>Peking University, Beijing, China</b><br>Bachelor of Science, School of EECS   | <i>Sept. 2011 - Jul. 2015</i> |

## WORK AND RESEARCH EXPERIENCE

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| <b>SPG → AIML, Apple</b><br>with Stephan Richter and Vladlen Koltun   | <i>Jul. 2023 - March 2024 → Apr. 2024 - present</i><br><i>Postdoctoral researcher → Research Scientist</i> |
| • Worked on a photorealistic novel view synthesis   |  |
| <b>Robot Perception Labs, CMU</b><br>advised by Michael Kaess   | <i>Aug. 2018 - Jun. 2023</i><br><i>PhD Research Assistant</i>  |
| • Worked on efficient, robust, and reproducible GPU-accelerated reconstruction systems                                    |  |
| <b>AI Algorithm Group, NVIDIA</b><br>advised by Anima Anandkumar  | <i>May 2022 - Nov. 2022</i><br><i>Research Intern</i>  |
| • Worked on fast monocular indoor scene reconstruction  |  |
| <b>Intelligent Systems Labs, Intel</b><br>advised by Vladlen Koltun   | <i>May 2019 - Aug. 2021</i><br><i>Research Intern</i>  |
| • Worked on supervised and self-supervised deep global point cloud registration   |  |
| • One of the key contributors to the open source project <a href="#">Open3D</a>   |  |
| <b>Computer Vision and Geometry Group, ETH Zurich</b><br>co-advised by Vagia Tsiminaki, Martin Oswald, and Marc Pollefeys | <i>Jul. 2017 - Dec. 2017</i><br><i>Summer Student Research Fellow</i>                                      |
| • Worked on joint appearance reconstruction and texture super-resolution  |  |
| <b>Key Laboratory of Machine Perception, Peking University</b><br>advised by Hongbin Zha                                  | <i>Jul. 2015 - Jul. 2018</i><br><i>Graduate Research Assistant</i>   |
| • Worked on visual odometry and dense 3D reconstruction   |  |

## RESEARCH INTEREST

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I work on 3D perception, including point cloud registration, dense geometry reconstruction, and photorealistic rendering. It is always interesting to play with the models scanned and reconstructed from the real world.

My research topics include:

- Supervised and self-supervised 3D geometric registration;
- Classical/differentiable geometry and appearance representation and reconstruction;
- Fast, modern, and easy-to-use parallel reconstruction systems.

## MAJOR PUBLICATIONS

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- [1] **Fast Monocular Scene Reconstruction with Global-Sparse Local-Dense Grids**  
Wei Dong, Chris Choy, Charles Loop, Yuke Zhu, Or Litany, and Anima Anandkumar  
*CVPR 2023*
- [2] **ASH: A Modern Framework for Parallel Spatial Hashing in 3D Perception**  
Wei Dong, Yixing Lao, Michael Kaess, and Vladlen Koltun  
*PAMI, May 2023*
- [3] **Self-supervised Geometric Perception**  
Heng Yang\*, Wei Dong\*, Luca Carlone, and Vladlen Koltun  
*CVPR 2021 (oral)*
- [4] **Deep Global Registration**  
Chris Choy\*, Wei Dong\*, and Vladlen Koltun  
*CVPR 2020 (oral)*
- [5] **GPU Accelerated Robust Scene Reconstruction**  
Wei Dong, Jaesik Park, Yi Yang, and Michael Kaess  
*IROS 2019 (oral)*
- [6] **Joint Multi-view Texture Super-resolution and Intrinsic Decomposition**  
Vagia Tsiminaki, Wei Dong, Martin R. Oswald, and Marc Pollefeys  
*BMVC 2019 (spotlight)*

## OTHER PUBLICATIONS

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- [1] **Learned Depth Estimation of 3D Imaging Radar for Indoor Mapping**  
Ruoyang Xu, Wei Dong, Arkash Sharma, and Michael Kaess  
*IROS 2022*
- [2] **A vision-based sensing framework for adaptive robotic tooling of indefinite surfaces**  
Özgüç Bertuğ Capunaman, Wei Dong, and Benay Gürsoy  
*Construction Robotics 2022*
- [3] **Map Compressibility Assessment for LiDAR Registration**  
Ming-Fang Chang, Wei Dong, Joshua Mangelson, Michael Kaess, and Simon Lucey  
*IROS 2021*
- [4] **Compositional Scalable Object SLAM**  
Akash Sharma, Wei Dong, Michael Kaess  
*ICRA 2021*
- [5] **Surfel-Based Dense RGB-D Reconstruction With Global And Local Consistency**  
Yi Yang, Wei Dong, Michael Kaess  
*ICRA 2019*

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\* indicates equal contribution

- [6] **Continuous-Time Stereo Visual Odometry Based on Dynamics Model**  
Xin Wang, Fei Xue, Zike Yan, **Wei Dong**, Qiuyuan Wang, Hongbin Zha  
*ICRA 2019*
- [7] **Guided Feature Selection for Deep Visual Odometry**  
Fei Xue, Qiuyuan Wang, Xin Wang, **Wei Dong**, Junqiu Wang, Hongbin Zha  
*ACCV 2018*
- [8] **PSDF Fusion: Probabilistic Signed Distance Function for On-the-fly 3D Data Fusion and Scene Reconstruction**  
**Wei Dong**, Qiuyuan Wang, Xin Wang, and Hongbin Zha  
*ECCV 2018*
- [9] **An Efficient Volumetric Mesh Representation for Real-time Scene Reconstruction using Spatial Hashing**  
**Wei Dong**, Jieqi Shi, Weijie Tang, Xin Wang, and Hongbin Zha  
*ICRA 2018*
- [10] **Edge Enhanced Direct Visual Odometry**  
Xin Wang, **Wei Dong**, Mingcai Zhou, Renju Li, and Hongbin Zha  
*BMVC 2016*

## SKILLS

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<b>Computer Languages</b>	C/C++, Python
<b>Software &amp; Tools</b>	CUDA, OpenGL, Metal, $\text{\LaTeX}$
<b>Languages</b>	Chinese (native), English (fluent), Japanese and Korean (basic)
<b>Misc</b>	Piano, Calligraphy

## SERVICE

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Reviewer of ICRA, IROS, RA-L, TRO, CVPR, ECCV, SIGGRAPH, TVCG, IJCV