WEI DONG

5000 Forbes Avenue, Newall-Simon Hall 2205, Pittsburgh, PA 15213

E-mail: weidong@andrew.cmu.edu   Website: http://dongwei.info

EDUCATION

Carnegie Mellon University, Pittsburgh, PA, USA   *Aug. 2018 - Jun. 2023 (Expected)*
PhD in Robotics, Robotics Institute, School of Computer Science

Peking University, Beijing, China   *Sept. 2015 - Jul. 2018*
Master of Science, Key Laboratory of Machine Perception, School of EECS

Peking University, Beijing, China   *Sept. 2011 - Jul. 2015*
Bachelor of Science, School of EECS

RESEARCH INTEREST

I work on 3D perception, from point cloud registration to dense geometry reconstruction. 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 online/offline reconstruction systems with fully optimized GPU backends.

SELECTED PUBLICATIONS

[1] **Fast Monocular Scene Reconstruction with Global-Sparse Local-Dense Grids**
Wei Dong, Chris Choy, Charles Loop, Yuke Zhu, Or Litany, and Anima Anandkumar
To appear in 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)

RESEARCH EXPERIENCE

Robot Perception Labs, CMU   *August 2018 - present*
advised by Michael Kaess

---

* indicates equal contribution

- Worked on efficient, robust, and reproducible GPU accelerated reconstruction systems

AI Algorithm Group, NVIDIA *May 2022 - present*
advised by Anima Anandkumar

- Worked on fast monocular indoor scene reconstruction

Intelligent Systems Labs, Intel *May 2019 - August 2021*
advised by Vladlen Koltun

- Worked on supervised and self-supervised deep global point cloud registration
- One of the key contributors to the open source project Open3D

Computer Vision and Geometry Group, ETH Zurich *July 2017 - December 2017*
coadvised by Vagia Tsiminaki, Martin Oswald, and Marc Pollefeys

- Worked on joint appearance reconstruction and texture super resolution

OTHER PUBLICATIONS

[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

[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

Computer Languages	C/C++, Python, MATLAB
Software & Tools	CUDA, OpenGL, LaTeX
Language	Chinese (native), English (fluent), Japanese and Korean (basic)

SERVICE

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