Haonan Dong

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Education

- **School of Geodesy and Geomatics, Wuhan University** — Wuhan, China
  Bachelor of Geodesy and Geomatics Engineering; GPA: 3.77/4; Ranking: 7/91 — *Sep, 2016 - Jun, 2020*
- **University of California, Santa Barbara** — Santa Barbara, USA
  Student Exchange Program; GPA: 3.7/4 — *Sep, 2019 - Dec, 2019*
- **School of Remote Sensing and Information Engineering, Wuhan University** — Wuhan, China
  Master of Pattern Recognition and Intelligent System; Grades: 91.2/100 — *Sep, 2020 - Jun, 2023*

Publications

- **Haonan Dong**, Xiaotong Ye, Congpu Hao. Emergency Evacuation Path Planning Algorithm for Indoor Fire in Commercial Buildings[J]. Journal of Geomatics, 2021,46(S1):40-43.DOI:10.14188/j.2095-6045.2019351.
- **Haonan Dong**, Jian Yao*. PatchMVSNet: Patch-wise Unsupervised Multi-View Stereo for Weakly-Textured Surface Reconstruction. arXiv:2203.02156.
- **Haonan Dong**, Jian Yao*, Fei Sun, Yuyue Liu, Yunmeng Li, Yuxi Xiao, Ye Gong, Li Li, Shaoshen Cao, Yuxuan Li. Optical Camera Calibration Revisited. Submitted to RA-L 2022.

Projects

- **Highly-Precise Point Clouds Reconstruction with RGB-D Camera**: Leader. University-Enterprise Cooperation: Funded by *Huawei Inc.* (03/2022 - Now.)
  - Utilized multi-view stereo method to improve the depth quality from consumer-level RGB-D camera.
  - Presented a high-quality depth dataset for indoor reconstruction.
- **Multi-Camera System Intrinsic and Extrinsic Calibration**: Leader. Funded by *National Natural Science Foundation of China.* and *DiDi Inc.* (12/2021 - 06/2022).
  - Designed the "Meta-Board" for the comprehensive optical camera calibration task.
  - Presented an intact, fast and robust calibration pipeline with "Meta-Board" based on deep learning.
  - Proposed a novel strategy for processing the fish-eye image by the orthoimage transformation.
  - Built a low-priced calibration field with "Meta-Board" and optimized the camera poses with adaptive bundle adjustment.
  - One paper submitted to RA-L 2022. Two patents under reviewing.
- **Multi-party Secure Pathological Computing System based on Federated Learning.**: Key member. Funded by *Xiamen Healthy and Medical Big Data Center* (06/2021 - 10/2021).
  - Built a secure computation framework based on the principle of federated learning.
  - Developed learning-based methods into the framework for image classification, segmentation and detection.
  - Used Kubernetes to make a distributed system for the multi-party computing.
- **Online 3D Reconstruction Server with High Performance Computing Cluster**: Leader. Funded by *CVRS, Wuhan University* (09/2020 - 05/2021).
  - Assembled a software about the intact 3D reconstruction pipeline to the textured mesh from RGB images, Videos.
  - Developed a back-end to manage a HPC cluster based on Slurm.
  - Established a server for the online reconstruction website.
- **Indoor Fire Evacuation System Based on Path Planning Algorithm and WSN**: Leader. *National Program of Innovation and Entrepreneurship for Undergraduates* (03/2018 - 06/2019).
  - Proposed an adaptive path planning algorithm based on AHP.
  - Designed the wireless sensor network(WSN) to collect data and to indicate the evacuation directions.

Intern

- **Instant Neural Implicit Surface Reconstruction**: Supervised by Prof. Lingjie Liu (Summer 2022).
  - Intergrate NeuS into Instnat-NGP and reached 6× faster in PSNR converge than NeuS.
  - Implementing the density grid in the training phase to further accelecerate the converge.

Honors and Awards

- Outstanding Graduate Award. — June, 2020
- Outstanding Award of National Program of Innovation and Entrepreneurship. — June, 2020
- Four-time "Second-Prize" Scholarships. — 2017, 2018, 2019, 2021
- "Southern-Survey Cup" Paper Competition: Special Prize (The Highest Award). — June, 2019
- Geomatics Skill Contest of SGG, Wuhan University: Third Prize. — March, 2019
- Honorable Prize of MCM/ICM. — Feburary, 2019
- Third Prize of China Undergraduate Mathematical Contest in Modeling. — August, 2018

Skills Summary

- **Languages**: C++, Python, Linux Shell, Matlab
- **Frameworks**: Pytorch, Tensorflow
- **Platforms**: Linux (Ubuntu, CentOS), Windows
- **Engilish**: TOEFL 97 (25 + 25 + 22 + 25) **Will Take Another Test.**
  GRE 321 (154 + 167) + 3