Zhixiang Min

Email: zmin1@stevens.edu | HP: htkseason.github.io

Education

Ph.D. in Computer Science, 2018-Present

- Stevens Institute of Technology, Hoboken, NJ, U.S.
- Advisor: Enrique Dunn

B.A. in Software Engineering, 2014-2018

- Donghua University, Shanghai, China

Research Interests

- General 3D Computer Vision, Structure-from-Motion, SLAM, 3D Reconstruction, 3D Localization, Semantic 3D Understanding, Image-based Rendering

Experiences

NEC Laboratories America, 2022

- Research Intern
- Worked on 3D object localization for autonomous driving.
- Mentor: Bingbing Zhuang, Manmohan Chandraker

Zillow, 2021

- Applied Scientist Intern
- Worked on indoor localization.
- Mentor: Sing Bing Kang

Publications

NeurOCS: Neural NOCS Supervision for Monocular 3D Object Localization

- ***Zhixiang Min***, Bingbing Zhuang, Samuel Schulter, Buyu Liu, Enrique Dunn, Manmohan Chandraker
- CVPR 2023
- (Training localization network with high quality NOCS supervision from NeRF optimization. Ranked 1st among monocular methods on KITTI object localization benchmark at the time of submission.)

LASER: LAtent SpacE Rendering for 2D Visual Localization

- ***Zhixiang Min***, Naji Khosravan, Zachary Bessinger, Manjunath Narayana, Sing Bing Kang, Enrique Dunn, Ivaylo Boyadzhiev
- CVPR 2022 (Oral Presentation)
- (A geometric learning framework for image-based Monte-Carlo localization, featuring in efficient sampling, lidar-level accuracy, and geometric interpretability.)

VOLDOR-SLAM: For the times when feature-based or direct methods are not good enough

- ***Zhixiang Min***, Enrique Dunn
- ICRA 2021
- (SLAM extension for VOLDOR, ranked 2nd on TartanAir SLAM challenge.)

VOLDOR: Visual Odometry from Log-logistic Dense Optical flow Residuals

- ***Zhixiang Min***, Yiding Yang, Enrique Dunn
- CVPR 2020 (Oral Presentation)
- (First GPU realtime visual odometry solution using dense optical flows. Accurate and robust for challenging camera motions and photometric conditions.)

DeepViewpoints: Hyper-Rays with Harmonics Encoding for 6DoF Viewpoint Learning

- ***Zhixiang Min***, Enrique Dunn
- Under Review
- (A set of fundamental tools and geometric primitives for 6DoF viewpoint learning.)

Patents

- Neural Shape for 3D Object Localization, U.S. Patent Application 63/421,607
- Neural Network-Based Image Localization on Floor Plans, U.S. Patent Application 17/897,154
- System and Method for Visual Odometry from Log-Logistic Dense Optical Flow Residuals, International PCT Application, PCT/US2021/034981

Services

- Reviewer for CVPR'21-23, ICCV'21, ECCV'22.