

Jie Yuan

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EDUCATION

- **Leibniz University Hannover** Hanover, Germany
Master of Science in Navigation and Field Robotics (interdisciplinary); Grade: 1.7 Oct. 2017 – Feb. 2021
- **China University of Mining and Technology** Xuzhou, China
Bachelor of Engineering in Geodesy and Geoinformatics; GPA: 3.57/4.0 (6/157) Sept. 2013 – July. 2017

EXPERIENCE

- **Institute of Photogrammetry and Geoinformation at Leibniz University** Hanover, Germany
Object Detection Developer (Student Assist) May. 2019 - Apr. 2020
 - **Algorithm Investigation:** Object detection algorithms YOLO, SSD, RetinaNet, Faster-RCNN on aerial images
 - **Algorithm Development:** Developing Rotated Faster-RCNN on aerial images
- **Institute of Cartography and Geoinformatics at Leibniz University** Hanover, Germany
GUI Developer for HD Mapping system (Student Assist) Feb. 2018 - Sep. 2018
 - **3D Scene Visualization:** Reconstruction of a fused 3D scene of point cloud and binocular camera
 - **Front-End GUI Design:** Design Interfaces for each tabs with multiple threads

PROJECTS

- **Panoptic Segmentation in Urban Area with Aerial Imagery** 2020
Object Detection; Semantic Segmentation; Instance segmentation Individual
 - **PanUrban Dataset:** Development of aerial image dataset in panoptic level based on semantic dataset
 - **Segmentation and Detection:** Development of a neural network specialized on aerial images.
 - **Result:** PQ with 54, AP with 50+ on PanUrban dataset
- **Vehicle Tracking and Motion Prediction with KFs** 2019
Object tracking; Deep learning; Kalman Filtering; C++ Individual
 - **Object Extraction:** 3D bounding box with fusion of lidar and camera
 - **Motion and Measurement:** CTRV model with Radar/Lidar Update
- **Dynamic Landmark based Visual Odometry** 2019
SFM; VIO; SLAM; 3D Reconstruction; Matlab; Python Team
 - **Keypoints based VIO:** Motion reconstruction with keypoints in RANSAC framework with epipolar constraint
 - **Sparse Map Reconstruction:** Keypoints reprojection to local 3d coordinate system by stereo configuration
 - **Ego Car Pose Fusion:** Pose Fusion with preceding vehicle broadcasted pose
- **LiDAR-based Georeferencing of Kinematic Multi-Sensor-Systems** 2018
Map Alignment; Georeferencing; IEKF; Matlab Team
 - **Point Cloud Data Association:** Assignment of points to building facades (plains) and lanterns (poles)
 - **Measurement Updating:** Car pose optimization by IEKF with implicit constraint, taking map as prior info
- **LEGO Robot Courier Simulation** 2017
Mobile Robot; Sensor Fusion; SLAM; Embedded System; C++; ROS; CMAKE; OpenCV Team
 - **Motion Model:** 2D differential drive kinematics
 - **Observation model:** ICP on Lidar; Global localization with external camera
 - **Mapping and Path Planning:** 2 dimensional grid map and A* algorithm with cost map

SKILLS

- **Programming Languages** C++, Python, Matlab, HTML, etc.
- **Tech Stacks** ROS, PCL, OpenCV, OpenGL, PCL, Eigen, Pytorch, Qt5, etc.
- **Tools** CMAKE, Docker, WSL, Git, SSH, MS Office, Latex, Cloud Service, etc.
- **Speaking Languages** English(C1), German(B2-C1), Chinese(C2).