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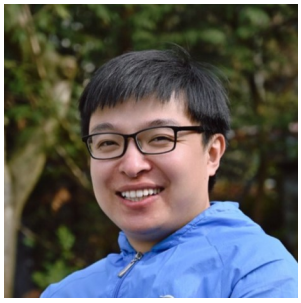

EXPERIENCE

- **Computer Vision Engineer** 05.2021 - now
  EnliteAI-Detekt Team *Vienna, Austria*
  - **Street Entities Detection/Localization**: Street scene understanding with CNN models and object localization in geospatial coordinates.
  - **Active-learning Annotation Tool**: Road signs miniature labeling tool.
  - **Data Crawling**: Crowd-sourcing open government geospatial data(OGD) and extraction of lines/areas/text information.
- **Object Detection Developer (Research Assist)** 05.2019 - 04.2020
  Institute of Photogrammetry and Geoinformation at Leibniz University *Hanover, Germany*
  - **Algorithm Investigation**: Object detection algorithms on aerial images
  - **Algorithm Development**: Development and application of rotated faster-RCNN on aerial images
- **HD Mapping System Developer (Research Assist)** 02.2018 - 09.2018
  Institute of Cartography and Geoinformatics at Lebiniz University *Hanover, Germany*
  - **GUI Design**: Design of multiple interfaces under tabs for different threads with QT5
  - **Multi Threading**: Configuration of front end and back-end process in multiple tabs
  - **Sensor Data IO**: Automatic data transferring from sensors to HD mapping system
  - **Scene Visualization**: Visualization of a fused 3D scene of point cloud and binocular camera
  - **Algorithm Adaptation**: Adaptation of new algorithms, such as fast global registration (FGR)

MAJORS

- **Perception:**: # Photogrammetric Computer Vision # Image Analysis (classical& modern) # Lidar Processing
- **Robotics:**: # Robotics Perception # Inertial Navigation and Filtering # SLAM # Artificial Intelligence

EDUCATION

- **Master of Science in Navigation and Field Robotics; Grade: 1.7** 10.2017 – 02.2021
  Leibniz University Hannover *Hanover, Germany*
- **Bachelor of Engineering in Geodesy and Geoinformatics; GPA: 3.57/4.0 (6/157)** 09.2013 – 07.2017
  China University of Mining and Technology *Xuzhou, China*

PROFESSIONAL CERTIFICATE

- **Sensor Fusion** *Udacity Nanodegree*
- **Deep Reinforcement Learning** *Udacity Nanodegree*

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).*

PROJECTS

- **Panoptic Segmentation in urban Area with Aerial Imagery (Master thesis)** 10.2020 - 02.2021
  Object Detection; Semantic Segmentation; Instance segmentation *Ubuntu/Cloud Platform*
  - **Rotated Object**: Rotational bounding box better enclose buildings and cars
  - **Multi-tasks Learning**: Balance on different subtasks, until panoptic level
  - **Evaluation**: instance segment and bounding box(AP); stuff segment(IoU and ACC);all segments(PQ/RQ/SQ)
- **PanUrban Dataset - A panoptic dataset in aerial imagery** 08.2020 - 10.2020
  Benchmark; Python; OpenCV; Annotation Interface *Ubuntu*
  - **Semi-automatic Workflow**: Workflow from semantic dataset to instance dataset then to panoptic dataset
  - **Annotation Format**: COCO style annotation format
  - **Full Range Augmentation**: Sampling annotation and source image from a large training patch
- **Real-time Point Cloud Rectification with Multiple Lidars** 07.2019 - 11.2019
  HD Mapping; ROS; C++; CMAKE *Ubuntu*
  - **Platform Calibration**: ICP transformation estimation in a closed geometric space configuration
  - **Time Synchronization**: GPS Time synchronization consistent with Mobile Mapping System
  - **Point Cloud Rectification**: GPS coordinate interpolation in the last time interval/Point cloud interpolation between recording time frames
- **Object Tracking and Motion Prediction with KFs** 04.2019 - 05.2019
  Sensor Fusion; Object tracking; Deep learning; Kalman Filtering; C++ *Ubuntu*
  - **Object Extraction**: Camera(Deep learning bounding box) and Lidar(RANSAC surface matching/Euclidean clustering and segmentation)
  - **Data Association**: Ellipsoid Gating/ Cross Correlation
  - **Motion Prediction and Update**: UKF and EKF to predict motion of preceding cars with CTRV motion model
- **Dynamic Landmark based Visual Odometry** 02.2019 - 04.2019
  SFM; VIO; SLAM; 3D Reconstruction; Matlab; Python *Windows*
  - **Keypoints and Descriptors**: Traditional Keypoints(SIFT,SURF,ORB,FREAK,BRISK); Deep learning keypoint(SuperPoint); Evaluated on different scenes
  - **Keypoints Matching**: RANSAC framework with epipolar constraint
  - **Motion Estimation**: Rigid body transformation estimation with matching points
  - **Sparse Map Reconstruction**: Keypoints reprejection to local 3d coordinate system by stereo configuration
  - **Dynamic filtering**: Pose Estimation w.r.t preceding car; optimization with EFK
  - **Performance Evaluation**: Accuracy and Efficiency in different scenes
- **LiDAR-based Georeferencing of Kinematic Multi-Sensor-Systems** 10.2018 - 01.2019
  Map Alignment; Georeferencing; IEKF; Matlab *Windows*
  - **PointCloud Assignment**: Assignment of points to building facades (plains) and lanterns (poles)
  - **Measurement Updating**: Robot state optimization by IEKF with implicit constraint
- **Sensor Fusion based on Set-membership KF with GPS and IMU** 04.2018 - 09.2018
  SMKF; Matlab *Windows*
  - **Uncertainty Model**: Ellipsoid space enclosed by Gaussian distribution
  - **Application**: Non-rigid body transformation estimation
- **LEGO Robot Courier Simulation** 10.2017 - 04.2018
  Mobile Robot; Sensor Fusion; SLAM; Embedded System; C++; ROS; CMake; OpenCV *Ubuntu*
  - **Sensor & Motion Model**: Lidar/Ultrasonic Unit/Camera; Differential drive kinematics
  - **Platform Calibration**: Camera(Zhang's Algorithm); Odometer: dirven cicle(CW and CCW);Lidar(calibrated)
  - **Localization**: Transform estimation via ICP; Global localization with camera; state optimized by EKF
  - **Mapping and Path Planing**: 2 dimensional grid map and A* algorithm with cost map
- **Digital Earth based on Web Map Service** 01.2017 - 07.2017
  Digital Earth; C++; Web Service; Tomcat; OpenGL; Pangolin; CMake; GDAL *Windows/Ubuntu*
  - **Web Map Service(WMS)**: Broadcasting web map service of grid maps on a local server with Apache Tomcat
  - **Client Application**: Prototype of a digital earth with function to download satellite images with UI
  - **Geographic Grid Technology**: Densification of Ikosaeder in different sampling resolutions