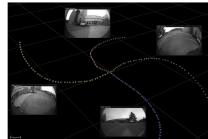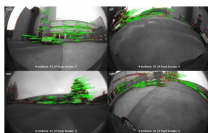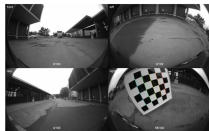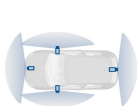# CamOdoCal: Automatic Intrinsic and Extrinsic Calibration of a Rig with Multiple Generic Cameras and Odometry

L. Heng, B. Li, and M. Pollefeys (IROS 2013)

- A full automatic pipeline for both intrinsic calibration for a generic camera and extrinsic calibration for a rig with multiple generic cameras and odometry
    - Without the need for GPS/INS and the Vicon motion capture system
- Intrinsic calibration for each generic camera using a chessboard
- Extrinsic calibration to find all camera-odometry transforms
    - Monocular VO for each camera using five-point algorithm and linear triangulation
    - Robust initial estimate of camera-odometry transform
    - 3D point triangulation
    - Finding local inter-camera feature point correspondences for consistency
    - Loop closure detection using a vocabulary tree
    - Full bundle adjustment
- Globally-consistent sparse map of landmarks which can be used for visual localization
- Highly accurate, automated, adaptable calibration for arbitrary, large-scale environments