Group 8 – VI-SLAM Navigation

- Goal: Conduct Visual Inertial-SLAM in challenging environments (high speeds, through tunnels, and poor lighting).
- Datasets: Stereo visual / inertial
  - TUM-VI for initial testing, NUance sample dataset, New data collected on NUance car. New data will consist of I-90 / I-93 / Storrow Drive Tunnel loops near Boston Logan International Airport
- Software Packages: ORB-SLAM3
  - Dependencies: OpenCV 3.2.0, DBoW2, g2o, Eigen 3.1.0, Python
- Hardware Requirements: Access to NUance car
- Evaluation:
  - Quantitatively compare trajectory error from indoor TUM-VI dataset and outdoor trajectory error on car using GPS data as ground truth
  - Qualitatively compare tunnel data with relative position information. Check if the tunnel driving estimates are as accurate as outdoor/indoor VI-SLAM navigation.
- Work Division:
  - All team members will run ORB-SLAM3 with sample data
  - Matt / Curtis – Refining ORB-SLAM algorithm
  - Andrew / Emma – Data and trajectory analysis