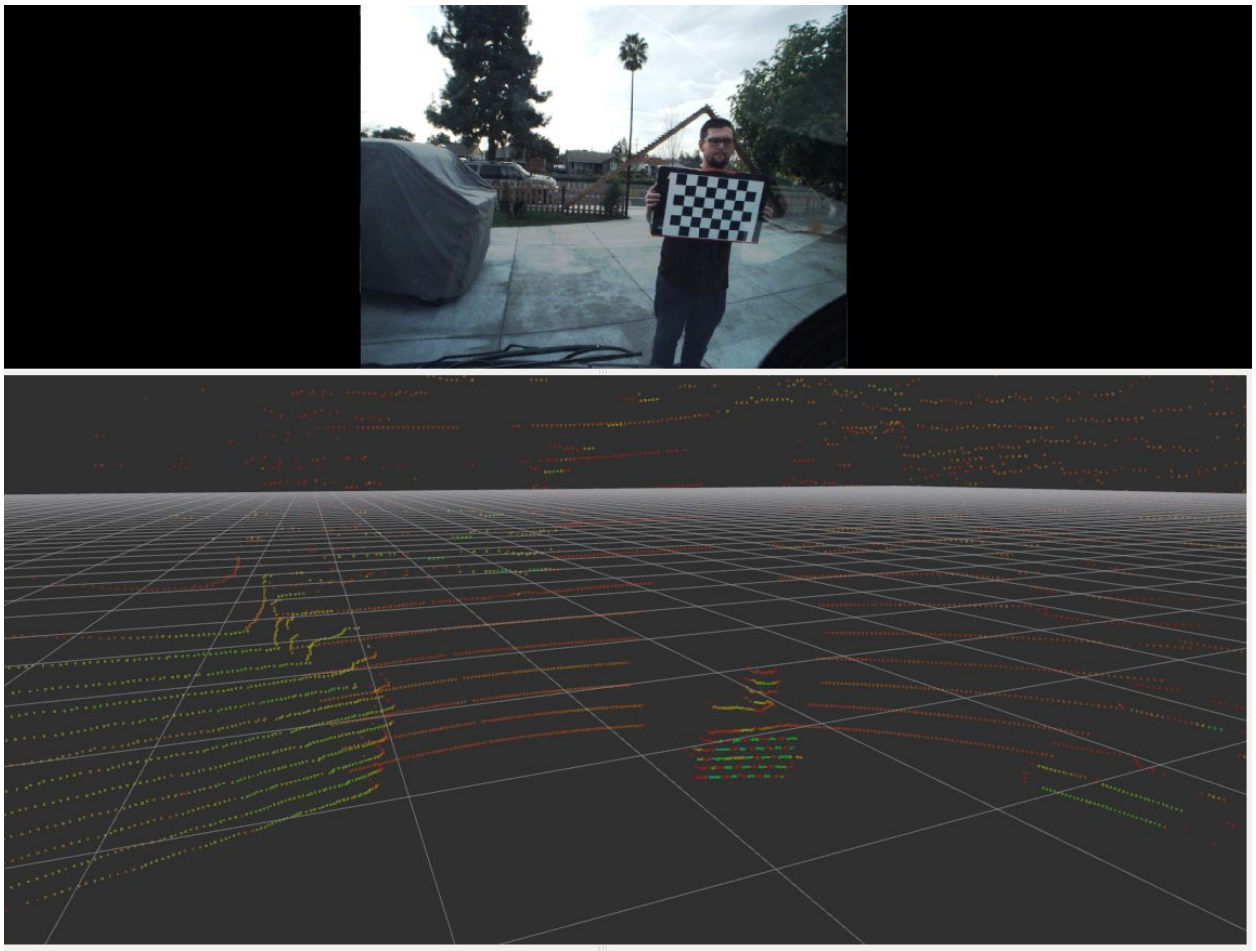
This assignment is given to test your skills in ROS, PCL, OpenCV etc.

There are 3 tasks to perform (detailed description later).

1. Camera calibration for image rectification
2. Camera to LIDAR calibration
3. RGB Point cloud display

Submit videos of screen or pictures and code (as zip files or github link)

Link to ROS Bag file http://gofile.me/6qNOh/UdGj0oMcs
The checkbox pattern used 5x7 corners and size of each square 5cm

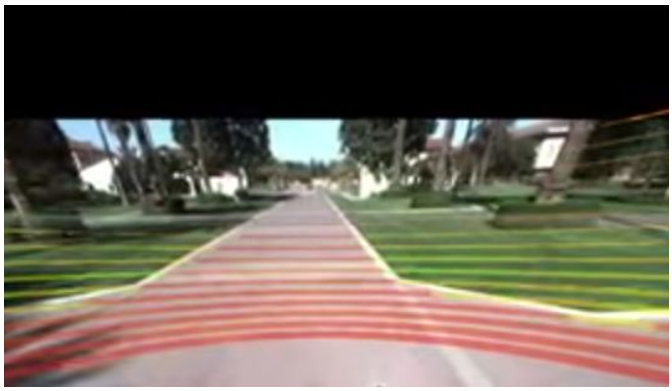


Here is a sample view of the dataset

Tasks in more details

Task 1: Calculate (using code/script) the camera calibration, and use it to rectify the image as shown here http://wiki.ros.org/image_proc

Task 2: Calculate (using code/script) translation and rotation offset between camera and lidar, and wire static transform accordingly and show overlay in rviz.
Example: https://www.youtube.com/watch?v=R1vRzCkHLrU
https://www.youtube.com/watch?v=tX9UTXXfkFw
https://www.youtube.com/watch?v=3yrk71Nxxec




Task 3: Using the previous calibrations, write a ROS node to generate RGB point cloud and visualize in rviz.
Example https://www.youtube.com/watch?v=JsopMf9CXUs