Masterarbeit
Structure SLAM with Points, Planes and Objects

Scope:
Much information can be obtained from single image, such as points, planes and objects. They are basic elements to reconstruct indoor scenes, but the relationship between them are not clear. For example, the points belong to the sofa or chair, or the plane is on the left or right of sofa? This thesis tries to solve the relationship between geometry elements and use them for indoor mapping process.

Problems:
1. how to detect objects and planes from single frame?
2. how to optimize points, planes and objects?
3. how to use geometry elements for localization and mapping?

Tasks:
1. learn to represent geometry elements (points, planes, objects)
2. find the relationship between plans and objects.
3. add points, planes and object in a SLAM framework

Requirements:
Good knowledge of robotics, computer vision, good programming skills in C++ or Python under Linux, previous experience with ROS is desirable. English is desirable.

Offer:
An interesting research topic in Robotics. This topic is a part of my dissertation topics, and we can work and discuss together.

Inquiries:
Please send us an e-mail with a curriculum vitae and a current overview of your grades.