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Master Thesis – 3D reconstruction for mobile devices

Background

Mobile devices such as smartphones, AR/VR glasses and robots will soon be required to fully understand the world around them in order to perform a large variety of applications, ranging from automatic inspection of infrastructure, to navigation in difficult environments. This understanding will come from a full and detailed digitalization of the world, which can be performed via 3D reconstruction algorithms. At Ericsson Research, our team has been developing state-of-the-art 3D reconstruction software which is revolutionizing the way devices see and understand the world.

Thesis Description

We are currently looking for students to work on a Master Thesis project (30 ECTS) to investigate, design and test the boundaries of the modern 3D reconstruction algorithms. This is an opportunity for you to further explore the exciting field of 3D reconstruction, like Multi-View-Stereo (MVS), Structure-from-Motion (SfM) algorithms and SLAM concepts, and demonstrate your cutting-edge ideas, energy and enthusiasm to revolutionize future connected devices and machines.

The project will focus on one of the following areas:

1. Monocular 3D reconstruction with accurately estimated camera poses: The research question in this study is to find the optimal reconstruction algorithm, given that accurate camera poses are provide by an additional sensor.

2. 3D reconstruction via monocular and depth sensors: The work will focus on investigating the optimal fusion of 3D information from depth sensors and a monocular camera in order to obtain accurate 3D models with improved speed.

Qualifications

- Strong interest in computer vision, in particular 3D reconstruction
- Knowledge in computer vision, signal processing and optimization
- Ability to formulate technical problems and solve them independently and in groups
- Strong analytical skills and ability to acquire new knowledge, apply it, and spread it to others
- Experience in C/C++ and Python

Location

Ericsson AB, Kista, Stockholm and remote working

Preferred Starting Date

January 2020

Contact Persons

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