General Info

Project Title: Visualization Framework for Intra-operative Nuclear Imaging

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Project Abstract

The aim of this project is to develop a GUI for augmented reality visualization in intra-operative imaging with navigated beta and high-energy probes.

Background and Motivation

Within the Navigated Nuclear Probes (NaNu) group of CAMP, we are developing intra-operative imaging modalities for providing guidance to the surgeon in the OR. Getting feedback from all involved parties (e.g., Nuclear Medicine experts, Surgeons) is a crucial part of the development cycle. For this reason, we have recently started working on a novel software framework (called Eos), that is envisioned to provide easy integration for new devices, and a small augmented-reality (AR) visualization framework to be used in conducting pre-clinical studies with surgeons and nuclear medicine doctors.

Student’s Tasks Description

A GUI using VTK is to be developed for visualizing 1. data acquisition (scanning) with a navigated nuclear probe, 2. reconstructed images, both in real-time. The GUI should be robust and easy to use. The student will have the opportunity to concretely contribute to a novel medical software framework by developing a dedicated visualization widget. In addition, s/he will have ample opportunity to get familiar with novel GUI programming tools like Qt and VTK.

Technical Prerequisites

- C++
- CMake
- Qt
- VTK
- OpenGL knowledge (i.e. graphics programming) is beneficial, but not required

Administrative Info

Working Time: 1-2 days a week

Project Location: IFL

Required Equipments: Laptop, Intra-operative Imaging Cart, Nuclear Probes

Timeline and Milestones

See the course website.

References


Please send the completed document to us (shakir@in.tum.de) before the project proposal deadline, April 10. Please note that this proposal will be evaluated by the BMC coordinators and will be assigned to a student only in the case of acceptance.
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