Vision-based detection of bleedings for robot-assisted surgery

Scope
The division of Translational Surgical Oncology at the National Center for Tumor Diseases (NCT) investigates computer- and robot-aided surgical assistance systems at the intersection of Computer Science and Medicine. Learning surgical skills through robotic assistants is one aspect of our research.

Task
Suction of blood from the patient’s body is an important task during a surgical procedure when a bleeding occurs. Transferring this skill to a robot could reduce the amount of medical staff required for one surgery. A prerequisite, however, is the robot’s ability to recognize and localize blood.

The task is to develop methods from the fields of Deep Learning and Computer Vision for various visual recognition tasks. E.g. segmentation of blood or detection of the source of the bleeding could be learned from image data of surgeries.

We are looking for:
- Motivated students interested in interdisciplinary work in the field of computer- and robot-assisted surgery
- Programming skills (e.g. Python or C++)
- Dedication, team spirit and motivation to contribute own ideas
- Basic knowledge in Deep Learning and Computer Vision preferred but not required

Contact:
Dominik Rivoir
dominik.rivoir@nct-dresden.de
https://www.nct-dresden.de/tso.html