Abstract:
The chair of Robotics and Embedded Systems at Technische Universität München has developed an experimental teleoperated robot system for minimally invasive surgery. In this scenario of robotic surgery, Skill Transfer from human demonstration to a machine, takes place in different subsequent steps. At first, user data is collected by means of two Phantom devices and the force sensors. With the help of these contrivances we can determine the position and orientation of the tool within the operation environment. If the tool gets in contact with the manipulated tissue or other objects in the environment, occurring forces are measured by strain gauges. By collecting this data over time, we get a complete description of the performed manipulation task. After that we smooth the acquired trajectory and decompose it into certain motion primitives. Later these skills can be replayed by context-sensitive instantiation.

Stichworte:
skill transfer; learning by demonstration