3.39 Robot Skills Transfer Toolbox

**Functional description**

Development of technologies to facilitate the re-programming of robots. We can provide tools and expertise for the automatic analysis and generation of movements, gestures and manipulation skills. The developed software components rise from the cross-fertilization of statistical learning, dynamical systems and optimal control, enabling skill transfer techniques that rely on the observation of human demonstrations and on intuitive interaction with the robot.

**Innovative aspects**

- Layman interface for robot programming
- Automatic adaptation of movements to new situations
- Handling of task variations and options
- Safe robot controlled by minimal intervention principle

**Commercial application examples**

- Human-robot skill transfer
- Optimal control based on human demonstrations
- Motion analysis and synthesis

**More information**


**Software & IPR status**

The underlying software comes in two distinct and independent versions in Matlab and C++ to facilitate both analysis and integration aspects. The Matlab version is fully compatible with the GNU Octave open source software. The C++ version is a library with minimal dependencies to facilitate its inclusion in other softwares. An independent and optional frontend GUI is available for monitoring and fast prototyping purposes.