

# From Intuitive Skill Transfer to Large-Scale Robotic Knowledge Bases

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## **Abstract**

This talk presents a unified framework for intuitive transfer of skills from a human teacher to a robot learner. We will focus on three main aspects of the skill transfer, namely the representation, the learning, and the execution of complex tasks. In our framework, human demonstrations are used by the robot to rapidly learn novel skills. A learned task is represented at two different levels. At the lower level, each segmented motion unit is compactly encoded into a stable dynamical system. At the higher level, the task is represented in a symbolic manner. The symbolic representation, also learned from demonstration, is then used to schedule the task execution. The last part of the talk presents current research activities aiming at realizing a large and highly optimized robotic knowledge base where modern data storage are exploited to perform real time reasoning.