Abstract:
The aim of this work was to implement and compare several activity recognition algorithms which could be used in a smart home environment and would be able to determine the current activity of an observed subject (virtual agent) in the smart home using only data gathered by elementary observations of the environment. Such algorithms are useful in several areas, for example to improve behavior of various virtual agents, making them more aware of actions of the other agents. The algorithms used in this thesis are based on Dynamic Bayesian Networks and have ability to determine whether the observed activity has been completed or just interrupted. An easily extensible 3D interactive simulator of a smart home environment was created to meet the needs of activity recognition and used to gather data for the learning and testing phases of the algorithms. The test subjects were human-controlled virtual agents.