Görer, Binnur; Salah, Albert Ali; Akın, H. Levent
A robotic fitness coach for the elderly.

Summary: The ultimate goal of ambient assisted living is to help elderly people live a healthy life in the convenience of their homes by making more intelligent technology bring them a set of required assistive tools. In this paper we describe a robotic fitness coach that learns a set of physical exercises from a professional trainer, and assists elderly subjects in performing these gestures. The gestures were selected from an actual training programme at an elderly care home. When demonstrating gestures, the robot performs the learned gestures to the best of its abilities, and while monitoring the elderly subject with an RGB-D camera, provides verbal guidance to complement the visual display, correcting gestures on the fly. We provide a detailed description of the training programme, the gesture acquisition, replication and evaluation algorithms, our solution to the robot stability problem, and a set of preliminary user tests to validate our approach.

doi:10.1007/978-3-319-03647-2_9