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The mobile fitness coach: Towards individualized skill assessment using personalized mobile devices

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Abstract

We report on our extended research on GymSkill, a smartphone system for comprehensive physical exercising support, from sensor data logging, activity recognition to on-top skill assessment, using the phone's built-in sensors. In two iterations, we used principal component breakdown analysis (PCBA) and criteria-based scores for individualized and personalized automated feedback on the phone, with the goal to track training quality and success and give feedback to the user, as well as to engage and motivate regular exercising. Qualitative feedback on the system was collected in a user study, and the system showed good evaluation results in an evaluation against manual expert assessments of video-recorded trainings.

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Keywords

Skill assessment; Physical exercising; Mobile computing; Mobile HCI; Human-computer interaction; Sports; Activity recognition; Pervasive computing; Ubiquitous computing

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