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Vocational computing: A data mining application for the workplace

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According to the US Department of Labor, thousands of workers die on the job each year because of accidents, or lack of training in using new technologies. Computational methods can be used to provide evidence-based quantitative assessments of worker ability and identify needs for training. Data mining methods can be applied to the analysis of performance multi-sensing interaction data collected while a person performs a certain work task. We describe the iWork smart service work-assessment system with recommendations of personalized intervention, following multimodal data mining of activity data. The service assesses mental, cognitive and physical skills of a worker for improved placement and informed decision-making. The proposed service takes advantage of recent advancements in robotics, sensing technologies, and intelligent communication platforms to enhance human ability to learn by interactive experiences. The service trains assistive workplace robots to provide personalized help to complete difficult cognitive and/or physical tasks in the workplace. A new machine learning methodology is described and demonstrated.

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