Advanced Skills Screening to Identify Valuable Personnel

Methods for Skill Screening Across Individuals and Tasks

A successful skill screening process can make the difference between finding the perfect fit for a company and making an uninformed hiring decision. This new method of skill screening integrates software and hardware to identify personnel having a particular skill by using a detailed quantitative multi-dimensional approach. Adopting this method for personnel selection will increase job success rates for positions requiring advanced skills.

Traditional methods for skill screening have focused on either subjective or performance measures. Not only have these methods proved unreliable, expensive, and time-consuming, but questionnaires on their own do not provide real-time assessment, nor are performance measures necessarily accurate projections of future performance. This new method encompasses subjective questionnaires, performance, and physiological response to capture the subtle and sensitive changes in performance across individuals and tasks.

Technical Details
The Skill Assessment Model relies on inputs from three qualitative testing areas: subjective, physiological, and performance measures. Subjective measures include questionnaires that provide perceived stress and workload assessment before and after a test. EEG and ECG sensors assess the cognitive state of the individual, while other physiological technologies measure cerebral hemodynamics (blood flow), electrical activity, heart rate, and eye response. Performance measures include response time, percentage correct, specific correct and incorrect identifications, and more. Combining these measurements, the system automatically generates a Bayesian model assessing one or more skills of an individual based on the user profile, task performance, and physiological sensor data. The resulting assessment of an individual provides an index of applicable skills that they would be fit to perform.

Leveraging transfer learning techniques, which provide the foundation for model reuse and adaptation, the model developed for a group of individuals in one test can be transferred to assess their skills for similar tasks, and even be applied to another group for the same task. Instead of investing unnecessary time and money in rebuilding statistical models, transfer learning aims to modify the model learned in previous tasks and adapt it for a new task, further reducing costs associated with sourcing skill personnel.

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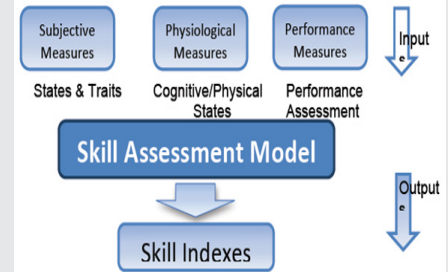
Benefits
- Enhances predictive capability
- Faster and cheaper advanced skill assessment
- Transferrable across individuals and tasks

Applications
- Medical personnel screening
- Air-traffic control and airport security
- Financial trading
- Military personnel screening

Tech Field
Software

Keywords
physiological sensors, multimodal assessment, skill screening, personnel selection, transfer learning

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