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An On-Bed Monitoring System For Rehabilitative Exercises

Technology description

Summary
UCLA researchers have developed a novel method for monitoring rehabilitative exercises using a bed sheet with high-density pressure sensors.

Background
Rehabilitative exercises traditionally require a physical therapist on hand to provide instructions and monitoring. Camera systems and other special equipment may also be used. However, conspicuous monitoring can make patients uncomfortable and the resulting data, such as camera recordings that identify patients, can be unsuitable for large-scale studies and systematic analysis. Camera recordings may additionally suffer from "blind spots," in which multiple cameras are required to capture all patient movement. There is a need for a non-intrusive, high resolution, continuous rehabilitation tracking method.

Innovation
UCLA researchers have developed a novel method for monitoring rehabilitative exercises using a bed sheet with high-density pressure sensors. The bed sheet permits effective patient evaluation via continuous and long-term measurement of pressure information. High resolution, high-dimensional data collected through the system would be conducive to systematic analysis and allow for relatively easy scrubbing of identifying information. Inconspicuous monitoring could also help to ease patient discomfort.

Application area

☒ Monitor patient rehabilitation progress
☒ On-bed rehabilitation exercises.

Advantages

☒ Replace human or camera-based monitoring
☒ Increase patients' privacy

Increased ease and scalable data collection and analysis

 Permits effective patient evaluation via continuous and long-term measurement of pressure information

 High resolution

 High-dimensional data

Institution

University of California, Los Angeles

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