



Using Eeg to Detect and Monitor Mental Fatigue (Paperback)

By Leslie Montgomery

Bibliogov, United States, 2013. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****.This project aims to develop EEG-based methods for detecting and monitoring mental fatigue. Mental fatigue poses a serious risk, even when performance is not apparently degraded. When such fatigue is associated with sustained performance of a single type of cognitive task it may be related to the metabolic energy required for sustained activation of cortical areas specialized for that task. The objective of this study was to adapt EEG to monitor cortical energy over a long period of performance of a cognitive task. Multielectrode event related potentials (ERPs) were collected every 15 minutes in nine subjects who performed a mental arithmetic task (algebraic sum of four randomly generated negative or positive digits). A new problem was presented on a computer screen 0.5 seconds after each response; some subjects endured for as long as three hours. ERPs were transformed to a quantitative measure of scalp electrical field energy. The average energy level at electrode P3 (near the left angular gyrus), 100-300 msec latency, was compared over the series of ERPs. For most subjects, scalp energy density at P3 gradually fell over the period of...



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