Special Issue Reprint

Emotion and Stress Recognition Related Sensors and Machine Learning Technologies

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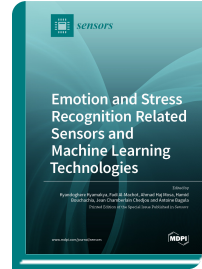
This book includes impactful chapters which present scientific concepts, frameworks, architectures and ideas on sensing technologies and machine learning techniques. These are relevant in tackling the following challenges: (i) the field readiness and use of intrusive sensor systems and devices for capturing biosignals, including EEG sensor systems, ECG sensor systems and electrodermal activity sensor systems; (ii) the quality assessment and management of sensor data; (iii) data preprocessing, noise filtering and calibration concepts for biosignals; (iv) the field readiness and use of nonintrusive sensor technologies, including visual sensors, acoustic sensors, vibration sensors and piezoelectric sensors; (v) emotion recognition using mobile phones and smartwatches; (vi) body area sensor networks for emotion and stress studies; (vii) the use of experimental datasets in emotion recognition, including dataset generation principles and concepts, quality insurance and emotion elicitation material and concepts; (viii) machine learning techniques for robust emotion recognition, including graphical models, neural network methods, deep learning methods, statistical learning and multivariate empirical mode decomposition; (ix) subject-independent emotion and stress recognition concepts and systems, including facial expression-based systems, speech-based systems, EEG-based systems, ECG-based systems, electrodermal activity-based systems, multimodal recognition systems and sensor fusion concepts; and (x) emotion and stress estimation and forecasting from a nonlinear dynamical system perspective.

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