1. Record Nr. UNINA9910956071303321

Autore	Stathopoulou Ioanna-Ourania
Titolo	Visual affect recognition / / Ioanna-Ourania Stathopoulou and George A. Tsihrintzis
Pubbl/distr/stampa	Washington, D.C., : IOS Press, 2010
ISBN	6612880414 1-282-88041-1 9786612880414 1-60750-597-5
Edizione	[1st ed.]
Descrizione fisica	1 online resource (267 p.)
Collana	Frontiers in artificial intelligence and applications. Knowledge-based intelligent engineering systems, , 0922-6389 ; ; v. 214
Altri autori (Persone)	TsihrintzisGeorge A
Soggetti	Computer vision Visual perception Facial expression Emotions - Physiological aspects Pattern recognition systems Artificial intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Title page -- Contents -- Introduction -- Motivation -- Organization of this monograph -- Psychological Studies on Emotion Perception -- Emotion vs affect vs feelings -- Emotions and culture -- Basic Emotions -- Culturally Specific Expressions of Emotions -- Higher Cognitive Emotions -- Neurobiology and Emotion Expression -- Cerebral Cortex -- Amygdala -- Superior Temporal Sulcus -- Implicit and Explicit Perception of Emotion -- Expression of Emotion -- Written Language -- Speech -- Facial Expressions -- Body movements and Hand gestures -- Facial Expression of Emotion -- Previous Attempts to Facial Emotion Quantification and Classification -- External Factors in Facial Emotion Perception -- Face and Facial Expressions: Their Role -- The Importance of Understanding Emotions -- Meeting Emotional Needs with the Help of Advanced Human-Computer Interaction Techniques -- Supporting emotional skill needs -- Supporting

experiential needs -- Studies and Systems on Emotion Recognition -- Face Databases -- Specifying Requirements for an Ideal Facial Expression Database -- Previous Facial Expression Databases -- Section Summary - Results -- Face Detection -- Specifying Requirements for an Ideal Face Detection System -- Previous Works on Face Detection -- Section Summary - Results -- Facial Expression Classification System -- Specifying Requirements for our Facial Expression Classification System -- Facial Expression Classification Approaches -- Section Summary - Results -- Face Image Databases -- The Database of Low Quality Face Images (DBLQFI) -- The Database of High Quality Face Images (DBHQFI) -- Empirical Studies on Emotion Recognition -- Preliminary Questionnaires -- Newer (Detailed) Questionnaires -- The detailed questionnaire structure -- The observer and subject backgrounds -- Results from Statistical Analysis -- Statistical Analysis per Expression.
Difficulties of Facial Expression Classification as Outlined by the Participants -- Statistical Significance of the Results -- Extraction of Facial Expression Classification Features -- Summary - Conclusions -- Visual-Facial Emotion Recognition System -- Face Detection -- P. Sinha's Template -- The Face Detection Algorithm - Image Preprocessing -- Artificial Neural Network-Based Face Detectors -- Performance Evaluation -- Summary and Conclusions -- Introduction to our Facial Expression Recognition System -- First attempts for facial expression recognition -- The Facial Expression Classification Algorithm (1st Attempts) -- Feature Validation (First Attempts) -- Neural Network Classifiers (First Attempts) -- Results from neural network classifiers (First Attempts) -- Facial expression recognition system -- Feature Selection -- Image Preprocessing and Feature Extraction -- The extraction algorithm for the rest of facial features -- Combination of all and computation of feature vector -- Quantification of Feature Discrimination Power -- Classifiers for Facial Expression Classification -- Classification Performance Assessment -- More Sophisticated Classifiers -- Experimental performance evaluation -- Summary - Conclusions -- Human Motion and Gesture Analysis -- Introduction -- Human detection and motion tracking -- Marker-based approaches -- Markerless approaches -- Hand Gesture recognition -- The meaning of hand gestures -- Techniques for hand gesture recognition -- Emotion Recognition Systems from Body Movements and Gestures -- Conclusions and Future Work -- Summary and Conclusions -- Current and Future Work -- Towards a multimodal emotion recognition system -- Towards extending the visual-facial expression recognition.

Sommario/riassunto

It is generally known that human faces, as well as body motions and gestures, provide a wealth of information about a person, such as age, race, sex and emotional state. This monograph primarily studies the perception of facial expression of emotion, and secondarily of motion and gestures, with the purpose of developing a fully automated visual affect recognition system for use in modes of human/computer interaction. The book begins with a survey of the literature on emotion perception, followed by a description of empirical studies conducted with human participants and the construction of a 'face image database'. On the basis of this work, a visual affect recognition system was developed, consisting of two modules: a face detection subsystem and a facial expression recognition subsystem.Details of this system are demonstrated and analyzed, and extensive performance evaluations and test results are provided. Finally, current research avenues leading to visual affect recognition via analysis of body motion and gestures are also discussed.