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Nota di contenuto	I: Augmented Cognition Methods and Techniques -- Development of Gauges for the QinetiQ Cognition Monitor -- Quantitative EEG Changes Under Continuous Wakefulness and with Fatigue Countermeasures: Implications for Sustaining Aviator Performance -- Exploring Calibration Techniques for Functional Near-Infrared Imaging (fNIR) Controlled Brain-Computer Interfaces -- A Sensor Positioning System for Functional Near-Infrared Neuroimaging -- Ad-Hoc Wireless Body Area Network for Augmented Cognition Sensors -- Integrating Innovative Neuro-educational Technologies (I-Net) into K-12 Science Classrooms -- The Impact of Direct Data Entry by Sensory Devices on EMR Systems -- Event-Related Brain Dynamics in Continuous Sustained-Attention Tasks -- Information Filtering, Expertise and Cognitive Load -- Using Eye Blinks as a Tool for Augmented Cognition -- Assessing Information Presentation Preferences with Eye Movements -- Inclusive Design for Brain Body Interfaces -- A Human Computer Interface Using SSVEP-Based BCI Technology -- Enhanced P300-Based Cursor Movement Control -- Low Power Technology for Wearable Cognition Systems -- Novel Hybrid Bioelectrodes for Ambulatory Zero-Prep EEG Measurements Using Multi-channel Wireless EEG System -- Measuring Cognitive Task Load on a Naval Ship: Implications of a Real

World Environment -- Measuring Spatial Factors in Comparative Judgments About Large Numerosities -- Augmented Metacognition Addressing Dynamic Allocation of Tasks Requiring Visual Attention -- Highly Configurable Software Architecture Framework for Acquisition and Visualization of Biometric Data -- Simulation Fidelity Design Informed by Physiologically-Based Measurement Tools -- Reverse Engineering the Visual System Via Genetic Programs -- EEG-Based Estimation of Mental Fatigue: Convergent Evidence for a Three-State Model -- Augmenting Task-Centered Design with Operator State Assessment Technologies -- Augmented Cognition and Cognitive State Assessment Technology – Near-Term, Mid-Term, and Long-Term Research Objectives -- II: Applications of Augmented Cognition -- Augmented Cognition, Universal Access and Social Intelligence in the Information Society -- Intent Driven Interfaces to Ubiquitous Computers -- Foundations for Creating a Distributed Adaptive User Interface -- EMMA: An Adaptive Display for Virtual Therapy -- Closed-Loop Adaptive Decision Support Based on Automated Trust Assessment -- A Closed-Loop Adaptive System for Command and Control -- Attuning In-Car User Interfaces to the Momentary Cognitive Load -- EEG-Based Drivers' Drowsiness Monitoring Using a Hierarchical Gaussian Mixture Model -- The Effect of Fatigue on Cognitive and Psychomotor Skills of Surgical Residents -- Assessing the Real-Time Cognitive Capabilities of First Responders Using Emerging Technologies in Manikin Simulators -- Physiologic System Interfaces Using fNIR with Tactile Feedback for Improving Operator Effectiveness -- A Model for Visio-Haptic Attention for Efficient Resource Allocation in Multimodal Environments -- Towards Attention-Guided Human-Computer Collaborative Reasoning for Spatial Configuration and Design -- Automated SAF Adaptation Tool (ASAT) -- Unobtrusive Multimodal Emotion Detection in Adaptive Interfaces: Speech and Facial Expressions -- Embedding Hercule Poirot in Networks: Addressing Inefficiencies in Digital Forensic Investigations -- The Future of Augmented Cognition Systems in Education and Training -- An Adaptive Instructional Architecture for Training and Education -- AFFectIX – An Affective Component as Part of an E-Learning-System -- Performance Compared to Experience Level in a Virtual Reality Surgical Skills Trainer -- Exploring Neural Trajectories of Scientific Problem Solving Skill Acquisition -- Towards a Closed-Loop Training System: Using a Physiological-Based Diagnosis of the Trainee's State to Drive Feedback Delivery Choices -- Aiding Tomorrow's Augmented Cognition Researchers Through Modeling and Simulation Curricula -- Designing for Augmented Cognition – Problem Solving for Complex Environments -- Making the Giant Leap with Augmented Cognition Technologies: What Will Be the First "Killer App"? -- Augmenting Cognition: Reviewing the Symbiotic Relation Between Man and Machine.

Sommario/riassunto

The 12th International Conference on Human-Computer Interaction, HCI International 2007, was held in Beijing, P.R. China, 22-27 July 2007, jointly with the Symposium on Human Interface (Japan) 2007, the 7th International Conference on Engineering Psychology and Cognitive Ergonomics, the 4th International Conference on Universal Access in Human-Computer Interaction, the 2nd International Conference on Virtual Reality, the 2nd International Conference on Usability and Internationalization, the 2nd International Conference on Online Communities and Social Computing, the 3rd International Conference on Augmented Cognition, and the 1st International Conference on Digital Human Modeling. A total of 3403 individuals from academia, research institutes, industry and governmental agencies from 76 countries submitted contributions, and 1681 papers, judged to be of

high scientific quality, were included in the program. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. This volume, edited by Dylan D. Schmorrow and Leah M. Reeves, contains papers in the thematic area of Augmented Cognition, addressing the following major topics: • Augmented Cognition Methods and Techniques • Applications of Augmented Cognition.