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Nota di contenuto	Front Cover; Human-Centric Interfaces for Ambient Intelligence; Copyright Page; Contents; Foreword; Preface; Ambient Intelligence; Human-Centric Design; Vision and Visual Interfaces; Speech Processing and Dialogue Management; Multimodal Interfaces; Smart Environment Applications; Conclusions; Acknowledgments; Part 1: Vision and Visual Interfaces; Chapter 1: Face-to-Face Collaborative Interfaces; 1.1 Introduction; 1.2 Background; 1.3 Surface User Interface; 1.4 Multitouch; 1.4.1 Camera-Based Systems; 1.4.2 Capacitance-Based Systems; 1.5 Gestural Interaction; 1.6 Gestural Infrastructures 1.6.1 Gestural Software Support1.7 Touch versus Mouse; 1.8 Design Guidelines for SUIs for Collaboration; 1.8.1 Designing the Collaborative Environment; 1.9 Conclusions; References; Chapter 2: Computer Vision Interfaces for Interactive Art; 2.1 Introduction; 2.1.1 A Brief History of (Vision in) Art; 2.2 A Taxonomy of Vision-Based Art; 2.3 Paradigms for Vision-Based Interactive Art; 2.3.1 Mirror Interfaces; 2.3.2 Performance; 2.4 Software Tools; 2.4.1 Max/MSP, Jitter, and Puredata; 2.4.2 EyesWeb; 2.4.3 processing; 2.4.4 OpenCV; 2.5 Frontiers of Computer Vision; 2.6

Sources of Information

2.7 Summary Acknowledgments; References; Chapter 3: Ubiquitous Gaze: Using Gaze at the Interface; 3.1 Introduction; 3.2 The Role of Gaze in Interaction; 3.3 Gaze as an Input Device; 3.3.1 Eyes on the Desktop; 3.3.2 Conversation-Style Interaction; 3.3.3 Beyond the Desktop; Ambient Displays; Human-Human Interaction in Ambient Environments; Activity detection; Interest level; Hot spot detection; Participation status; Dialogue acts; Interaction structure; Dominance and influence; 3.4 Mediated Communication; 3.5 Conclusion; References

Chapter 4: Exploiting Natural Language Generation in Scene Interpretation 4.1 Introduction; 4.2 Related Work; 4.3 Ontology-Based User Interfaces; 4.4 Vision and Conceptual Levels; 4.5 The NLG Module; 4.5.1 Representation of the Discourse; 4.5.2 Lexicalization; 4.5.3 Surface Realization; 4.6 Experimental Results; 4.7 Evaluation; 4.7.1 Qualitative Results; 4.7.2 Quantitative Results; 4.8 Conclusions; Acknowledgments; Appendix Listing of Detected Facts Sorted by Frequency of Use; References; Chapter 5: The Language of Action: A New Tool for Human-Centric Interfaces; 5.1 Introduction 5.2 Human Action 5.3 Learning the Languages of Human Action; 5.3.1 Related Work; 5.4 Grammars of Visual Human Movement; 5.5 Grammars of Motoric Human Movement; 5.5.1 Human Activity Language: A Symbolic Approach; 5.5.2 A Spectral Approach: Synergies; 5.6 Applications to Health; 5.7 Applications to Artificial Intelligence and Cognitive Systems; 5.8 Conclusions; Acknowledgments; References; Part 2: Speech Processing and Dialogue Management; Chapter 6: Robust Speech Recognition Under Noisy Ambient Conditions; 6.1 Introduction; 6.2 Speech Recognition Overview; 6.3 Variability in the Speech Signal 6.4 Robust Speech Recognition Techniques

Sommario/riassunto

To create truly effective human-centric ambient intelligence systems both engineering and computing methods are needed. This is the first book to bridge data processing and intelligent reasoning methods for the creation of human-centered ambient intelligence systems. Interdisciplinary in nature, the book covers topics such as multi-modal interfaces, human-computer interaction, smart environments and pervasive computing, addressing principles, paradigms, methods and applications. This book will be an ideal reference for university researchers, R&D engineers, computer engineers, and graduate
