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Nota di contenuto	A critical analysis of speech-based interaction in healthcare robots : making a case for the increased use of speech in medical and assistive robots / Antonio Teixeira -- Speech-based interaction with service robots : a survey of methods and approaches / Vladimir Kulyukin -- Improving patient-robot interaction in healthcare : service robot feature effects on patient acceptance and emotional responses / Manida Swangnetr, David B. Kaber, Biwen Zhu, and Tao Zhang -- Designing embodied and virtual agents for the operating room : taking a closer look at multimodal medical service robots and other cyber-physical systems / Juan P. Wachs -- The emerging role of robotics for personal health management in the older-adult population / Bengisu Tulu, Taskin Padir, Rebecca J. Linton, Kevin Malehorn, Tammy Liu, Conrad Bzura, and Hosung Im -- Enabling older adults to interact with robots : why input methods Are critical for usability / Jenay A. Beer and Wendy A. Rogers -- Human-robot interaction for assistance with activities of daily living : a case study of the socially and cognitively engaging Brian

2.1 in the long-term care setting / Derek McColl and Goldie Nejat -- Voice-enabled assistive robots for handling autism spectrum conditions : an examination of the role of prosody / Erik Marchi, Fabien Ringeval, and Bjorn Schuller -- ASR and TTS for voice controlled child-robot interactions in Italian : empirical study findings on the Aliz-e project for treating children with metabolic disorders in the hospital setting / Giacomo Sommavilla, Fabio Tesser, Giulio Paci, and Piero Cosi.

Sommario/riassunto

Examines various speech technologies deployed in healthcare service robots to maximize the robot's ability to interpret user input. Demonstrates how robot anthropomorphic features and etiquette in behavior promotes user-positive emotions, acceptance of robots, and compliance with robot requests. Analyzes how multimodal medical-service robots and other cyber-physical systems can reduce mistakes and mishaps in the operating room. Evaluates various input methods for improving acceptance of robots in the older adult population. Presents case studies of cognitively and socially engaging robots in the long-term care setting for helping older adults with activities of daily living and in the pediatric setting for helping children with autism spectrum conditions and metabolic disorders. Speech and Automata in Health Care forges new ground by closely analyzing how three separate disciplines - speech technology, robotics, and medical/surgical/assistive care - intersect with one another, resulting in an innovative way of diagnosing and treating both juvenile and adult illnesses and conditions. This includes the use of speech-enabled robotics to help the elderly population cope with common problems associated with aging caused by the diminution in their sensory, auditory and motor capabilities. By examining the emerging nexus of speech, automata, and health care, the authors demonstrate the exciting potential of automata, both speech-driven and multimodal, to affect the healthcare delivery system so that it better meets the needs of the populations it serves. This book provides both empirical research findings and incisive literature reviews that demonstrate some of the more novel uses of speech-enabled and multimodal automata in the operating room, hospital ward, long-term care facility, and in the home. Studies backed by major universities, research institutes, and by EU-funded collaborative projects are debuted in this volume. This volume provides a wealth of timely material for industrial engineers, speech scientists, computational linguists, and for signal processing and intelligent systems design experts. Topics include: Spoken Interaction with Healthcare Robots Service Robot Feature Effects on Patient Acceptance/Emotional Response Designing Embodied and Virtual Agents for the Operating Room The Emerging Role of Robotics for Personal Health Management in the Older-Adult Population Why Input Methods for Robots that Serve the Older Adult Are Critical for Usability Socially and Cognitively Engaging Robots in the Long-Term Care Setting Voice-Enabled Assistive Robots for Managing Autism Spectrum Conditions ASR and TTS for Voice-Controlled Robot Interactions in Treating Children with Metabolic Disorders