

Table of Contents

Design Philosophies and Software Architectures for Robotics

| | |
|---|----|
| A Multimodal Human-Robot-Dialog Applying Emotional Feedbacks | 1 |
| <i>Alexander Bannat, Jürgen Blume, Jürgen T. Geiger, Tobias Rehrl, Frank Wallhoff, Christoph Mayer, Bernd Radig, Stefan Sosnowski, and Kolja Kühnlenz</i> | |
| Pseudo Swarm Implementation Using Robotic Agents and Graphical Simulation | 11 |
| <i>Jeremiah C. Aboganda, Christopher Kim C. Go, Jonathan R. Maniago, Michelle Jean R. Sia, and Carlos M. Oppus</i> | |
| User Identification for Healthcare Service Robots: Multidisciplinary Design for Implementation of Interactive Services | 20 |
| <i>I. Han Kuo, Chandimal Jayawardena, Priyesh Tiwari, Elizabeth Broadbent, and Bruce A. MacDonald</i> | |
| Using a Social Robot as a Gaming Platform | 30 |
| <i>F. Alonso-Martín, V. Gonzalez-Pacheco, Álvaro Castro-González, Arnaud A. Ramey, Marta Yébenes, and Miguel A. Salichs</i> | |
| Robotic Platform: A XML-Based Extensible Robot Intelligence Architecture (XRIA) | 40 |
| <i>Ridong Jiang, Yeow Kee Tan, Dilip Kumar Limbu, and Tran Ang Dung</i> | |

Social Acceptance for Human-Robot Interaction I

| | |
|---|----|
| Socializing with Olivia, the Youngest Robot Receptionist Outside the Lab | 50 |
| <i>Andreea Niculescu, Betsy van Dijk, Anton Nijholt, Dilip Kumar Limbu, Swee Lan See, and Alvin Hong Yee Wong</i> | |
| Minimal Set of Recognizable Gestures for a 10 DOF Anthropomorphic Robot | 63 |
| <i>John-John Cabibihan, Wendy Yussong, Saba Salehi, and Shuzhi Sam Ge</i> | |

| | |
|--|----|
| STB: Intentional Stance Grounded Child-Dependent Robot | 71 |
| <i>Yuto Yamaji, Taisuke Miyake, Yuta Yoshiike,</i> <i>P. Ravindra S. De Silva, and Michio Okada</i> | |

| | |
|---|----|
| Using the Interaction Rhythm as a Natural Reinforcement Signal for Social Robots: A Matter of Belief | 81 |
| <i>Antoine Hiolle, Lola Cañamero, Pierre Andry,</i> <i>Arnaud Blanchard, and Philippe Gaussier</i> | |

| | |
|---|----|
| Case Study of a Multi-robot Healthcare System: Effects of Docking and Metaphor on Persuasion | 90 |
| <i>Osamu Sugiyama, Kazuhiko Shinozawa, Takaaki Akimoto, and</i> <i>Norihiro Hagita</i> | |

Learning, Adaptation and Evolution of Robot Intelligence

| | |
|--|-----|
| State Representation with Perceptual Constancy Based on Active Motion | 100 |
| <i>Manabu Gouko and Yuichi Kobayashi</i> | |

| | |
|--|-----|
| Selection of Actions for an Autonomous Social Robot | 110 |
| <i>Álvaro Castro-González, María Malfaz, and Miguel A. Salichs</i> | |

| | |
|--|-----|
| On Internal Knowledge Representation for Programming Mobile Robots by Demonstration | 120 |
| <i>Tanveer Abbas and Bruce A. MacDonald</i> | |

| | |
|---|-----|
| A Software Framework for Multi Player Robot Games | 131 |
| <i>Søren Tranberg Hansen and Santiago Ontañón</i> | |

| | |
|--|-----|
| A Behavior Adaptation Method for an Elderly Companion Robot—Rui | 141 |
| <i>Yong Tao, Tianmiao Wang, Hongxing Wei, and Peijiang Yuan</i> | |

| | |
|--|-----|
| An Adaptive Information System for an Empathic Robot Using EEG Data | 151 |
| <i>Dominic Heger, Felix Putze, and Tanja Schultz</i> | |

Mechatronics and Intelligent Control

| | |
|--|-----|
| Mind Robotic Rehabilitation Based on Motor Imagery Brain Computer Interface | 161 |
| <i>Yaozhang Pan, Qing Zhuang Goh, Shuzhi Sam Ge,</i> <i>Keng Peng Tee, and Keum-Shik Hong</i> | |

| | |
|---|-----|
| COSA Finger: A Coupled and Self-Adaptive Under-actuated Unit for Humanoid Robotic Hand | 172 |
| <i>Jie Sun and Wenzeng Zhang</i> | |

| | |
|---|-----|
| A Humanoid Robot Upper Limb System with Anthropomorphic Robot Hand: GCUA Hand II | 182 |
| <i>Demeng Che and Wenzeng Zhang</i> | |
| Improving Positioning Accuracy of Robotic Systems by Using Environmental Support Constraints – A New Bionic Approach..... | 192 |
| <i>Albert Albers, Markus Frietsch, and Christian Sander</i> | |
| Nonlinear Control of a Robot Manipulator with Time-Varying Uncertainties | 202 |
| <i>Rui Yan, Keng Peng Tee, and Haizhou Li</i> | |
| Adaptive Motion Synchronization of Bilateral Teleoperation Systems with Time-Varying Communication Delays | 212 |
| <i>Xiaoqing Cao and Zhijun Li</i> | |
| HRI in Assistive Technologies for People with Special Needs | |
| Design of Robot Assisted Observation System for Therapy and Education of Children with Autism | 222 |
| <i>Young-Duk Kim, Jong-Wook Hong, Won-Seok Kang, Sang-Su Baek, Hyo-Shin Lee, and Jinung An</i> | |
| Study on an Assistive Robot for Improving Imitation Skill of Children with Autism..... | 232 |
| <i>Isao Fujimoto, Tohru Matsumoto, P. Ravindra S. De Silva, Masakazu Kobayashi, and Masatake Higashi</i> | |
| Developing Play Scenarios for Tactile Interaction with a Humanoid Robot: A Case Study Exploration with Children with Autism | 243 |
| <i>Ben Robins and Kerstin Dautenhahn</i> | |
| Development of PARO Interventions for Dementia Patients in Dutch Psycho-geriatric Care | 253 |
| <i>Gert Jan Gelderblom, Roger Bemelmans, Nadine Spierts, Pieter Jonker, and Luc de Witte</i> | |
| Short Term Effect Evaluation of IROMEC Involved Therapy for Children with Intellectual Disabilities..... | 259 |
| <i>Tanja Bernd, Gert Jan Gelderblom, Silvie Vanstipelen, and Luc de Witte</i> | |
| Adaptive Robot Design with Hand and Face Tracking for Use in Autism Therapy | 265 |
| <i>Laura Boccanfuso and Jason M. O’Kane</i> | |

Affective and Cognitive Sciences for Interactive Robots

Selecting When Acting: How Human Perception Is Tuned to Action Goals and How Robotics Can Benefit from That 275
Agnieszka Wykowska and Anna Schubö

The Evaluation of Empathy, Autonomy and Touch to Inform the Design of an Environmental Monitoring Robot..... 285
Vanessa Evers, Andi Winterboer, Gregor Paulin, and Frans Groen

Attention Determination for Social Robots Using Salient Region Detection 295
Hongsheng He, Zhengchen Zhang, and Shuzhi Sam Ge

Bimodal Emotion Recognition 305
Marco Paleari, Ryad Chellali, and Benoit Huet

Objective Evaluation of Spatial Information Acquisition Using a Visuo-tactile Sensory Substitution Device 315
Luca Brayda, Claudio Campus, Ryad Chellali, and Guido Rodriguez

Social Acceptance for Human-Robot Interaction II

Can I Help You? A Spatial Attention System for a Receptionist Robot 325
Patrick Holthaus, Ingo Lütkebohle, Marc Hanheide, and Sven Wachsmuth

A Persuasive Robotic Agent to Save Energy: The Influence of Social Feedback, Feedback Valence and Task Similarity on Energy Conservation Behavior..... 335
Jaap Ham and Cees Midden

Understanding Communication Patterns for Designing Robot Receptionist..... 345
Benedict Tay Tiong Chee, Alvin Hong Yee Wong, Dilip Kumar Limbu, Adrian Hwang Jian Tay, Yeow Kee Tan, and Taezoon Park

Do Social Robots Walk or Roll? 355
Selene Chew, Willie Tay, Danielle Smit, and Christoph Bartneck

Interaction and Collaboration

Synthetic Skins with Humanlike Warmth..... 362
John-John Cabibihan, Rangarajan Jegadeesan, Saba Salehi, and Shuzhi Sam Ge

| | |
|--|-----|
| Entrainment of Pointing Gestures by Robot Motion | 372 |
| <i>Takamasa Iio, Masahiro Shiomi, Kazuhiko Shinozawa,</i> <i>Takaaki Akimoto, Katsunori Shimohara, and Norihiro Hagita</i> | |
| Emo-dramatic Robotic Stewards | 382 |
| <i>Salvatore M. Anzalone, Antonio Nuzzo, Nicola Patti,</i> <i>Rosario Sorbello, and Antonio Chella</i> | |
| Fusion and Self-adaptation of Color and Gradient Based Models for Object Detection and Localization in Applications of Service Robots ... | 392 |
| <i>Li Dong, Xinguo Yu, Liyuan Li, and Jerry Kah Eng Hoe</i> | |
| Development of Robotic Arm Rehabilitation Machine with Biofeedback That Addresses the Question on Filipino Elderly Patient Motivation.... | 401 |
| <i>Matthew Ang, Luke Limkaichong, Winston Perez, Lyka Sayson,</i> <i>Nikka Tampo, Nilo Bugtai, and Eppie Estanislao-Clark</i> | |
| Author Index | 411 |