

**33rd Annual Convention of the Society  
for the Study of Artificial Intelligence  
and the Simulation of Behaviour  
(AISB 2007)**

**Artificial and Ambient Intelligence**

**Tyne, United Kingdom  
2-5 April 2007**

ISBN: 978-1-63266-836-3

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2007) by AISB – The Society for the Study of Artificial Intelligence  
and the Simulation of Behaviour  
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact AISB  
at the address below.

AISB  
c/o Dr. Katerina Koutsantoni  
4 Windsor Walk, Denmark Hill  
London SE5 8AF UK

Phone: 441 273 678 448  
Fax: 441 273 671 320

[aisb@cogs.susx.ac.uk](mailto:aisb@cogs.susx.ac.uk)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## ARTIFICIAL SOCIETIES FOR AMBIENT INTELLIGENCE

<b>AMBIENT INTELLIGENCE AS A NEVER-ENDING SELF-ORGANIZING PROCESS: ANALYSIS AND EXPERIMENTS</b> .....	2
<i>Jean-Pierre George, Valerie Camps, Marie-Pierre Gleizes, Pierre Glize</i>	
<b>OPEN RESPONSIVE ENVIRONMENTS USING SOFTWARE AGENTS</b> .....	8
<i>Frank Guerin, Wamberto Vasconcelos</i>	
<b>CONVIVIALITY FOR AMBIENT INTELLIGENCE</b> .....	14
<i>Patrice Caire</i>	
<b>ABSTRACTION AS A TOOL FOR MULTI-AGENT POLICY EVALUATION</b> .....	20
<i>Kryisia Broda, Christopher John Hogger</i>	
<b>CYBERCARE: REASONING ABOUT PATIENT'S PROFILE IN HOME HEALTHCARE</b> .....	26
<i>Alessandra Mileo, Davide Merico, Roberto Bisiani</i>	
<b>USER PROFILE AGENTS FOR CULTURAL HERITAGE FRUITION</b> .....	30
<i>Stefania Costantini, Paola Inverardi, Leonardo Mostarda</i>	
<b>CURIOUS PLACES: CURIOUS, PROACTIVE, ADAPTIVE BUILT ENVIRONMENTS</b> .....	34
<i>Kathryn Merrick, Rob Saunders, Mary Lou Maher</i>	
<b>MODELLING GROUP DECISION MAKING PROCESSES WITH ARTIFICIAL SOCIETIES CONSIDERING EMOTIONAL FACTORS</b> .....	38
<i>Goreti Marreiros, Ricardo Santos, Carlos Freitas, Carlos Ramos, José Neves, José Bulas-Cruz</i>	
<b>TOWARDS A MODEL OF EVOLVING AGENTS FOR AMBIENT INTELLIGENCE</b> .....	42
<i>Stefania Costantini, Pierangelo Dell'Acqua, Luis Moniz Pereira, Francesca Toni</i>	
<b>ARGUMENTATION-BASED DECISION MAKING FOR SELECTING COMMUNICATION SERVICES IN AMBIENT HOME ENVIRONMENTS</b> .....	46
<i>Maxime Morge, Paolo Mancarella</i>	

## AFFECTIVE SMART ENVIRONMENTS

<b>AUTOMATIC GENERATION OF RELATIONAL REPORTS FOR TEAMWORK</b> .....	51
<i>Massimo Zancanaro, Bruno Lepri, Elena Not, Fabio Pianesi</i>	
<b>PHYSIOLOGICAL CORRELATES OF EMOTIONS</b> .....	59
<i>Astrid Oehme, Antje Herbon, Stefan Kupschick, Eric Zentsch</i>	
<b>A COMPUTATIONAL STUDY ON EMOTIONS AND TEMPERAMENT IN MULTI-AGENT SYSTEMS</b> .....	64
<i>Daria Barteneva, Numo Lau, Luis Paulo Reis</i>	
<b>A MATHEMATICAL MODEL TO ANALYSE THE DYNAMICS OF GESTURE EXPRESSIVITY</b> .....	72
<i>Ginevra Castellano, Antonio Camurri, Barbara Mazzarino, Gualtiero Volpe</i>	
<b>RATE OF SPEECH AND MENTAL PROCESSES IN EMOTIONAL AND COGNITIVE REGULATION</b> .....	78
<i>Marco Tonti</i>	
<b>AN ADAPTIVE RULE-BASED INFERENCE ENGINE FOR REALISING REASONABLE BEHAVIOUR OF SMART ENVIRONMENTS</b> .....	84
<i>Michael Hellenschmidt</i>	
<b>AGENT-BASED GROUP MODELLING FOR AMBIENT INTELLIGENCE</b> .....	90
<i>Judith Masthoff, Wamberto W. Vasconcelos, Chris Aitken, Flávio S. Correa Da Silva</i>	
<b>EMOTIONAL DESIGN FOR PUBLIC DISPLAYS</b> .....	97
<i>Daniel Schulz, Hans Jorg Muller, Antonio Kruger</i>	
<b>SOCIAL ROBOTS INTERFACE WITH SMART ENVIRONMENTS</b> .....	101
<i>Giovanni Cozzolongo, Sebastiano Pizzutilo</i>	
<b>AN INITIAL APPROACH TO MODELLING CULTURAL VARIABILITY IN CONVERSATIONAL AGENTS</b> .....	109
<i>Asad Nazir, Ruth Aylett, Alison Cawsey</i>	

## **THE REIGN OF CATZ & DOGZ? THE ROLE OF VIRTUAL PETS IN A COMPUTERISED SOCIETY**

<b>INTRODUCING THE COMPANIONS PROJECT: INTELLIGENT, PERSISTENT, PERSONALISED MULTIMODAL INTERFACES TO THE INTERNET.....</b>	116
<i>Oli Mival &amp; David Benyon</i>	
<b>STUDYING REPTILE OWNERS TO AVOID DESIGNING REPTILE-LIKE AGENTS .....</b>	119
<i>S. Ljungblad, M. Jacobsson, L. E. Holmquist</i>	
<b>WHAT CAN I DO FOR YOU? APPEARANCE AND APPLICATION OF ROBOTS .....</b>	121
<i>Manja Lohse, Frank Hegel, Agnes Swadzha, Katharina Rohlfing, Sven Wachsmuth, Britta Wrede</i>	
<b>A FOUNDATION OF EMOTION RESEARCH FOR GAMES &amp; SIMULATIONS .....</b>	127
<i>Stuart Slater, Kamal Bechkoun, Kevan Buckley</i>	
<b>DIGITAL PUPPETRY AND TALKING TOYS TEN EMERGING THESES INVOLVING TALKING TOYS AND TECHNOLOGY .....</b>	135
<i>Ian Grant</i>	
<b>SOCIALLY PROMISCUOUS MOBILE PHONE PETS.....</b>	141
<i>Sean Casey, Duncan Rowland</i>	
<b>VIRTUAL PETS AND ELECTRONIC COMPANIONS – AN AGENDA FOR INTER-DISCIPLINARY RESEARCH .....</b>	147
<i>Shaun Lawson, Thomas Chesney</i>	

## **LANGUAGE, SPEECH & GESTURE FOR EXPRESSIVE CHARACTERS**

<b>COEXPRESSIVITY OF SPEECH AND GESTURE: LESSONS FOR MODELS FOR ALIGNED SPEECH AND GESTURE PRODUCTION.....</b>	153
<i>Kirsten Bergmann, Stefan Kopp</i>	
<b>A SEMANTIC DESCRIPTION OF GESTURE IN BML.....</b>	159
<i>Micolas Ech Chafai, Catherine Pelachaud, Danielle Pele</i>	
<b>LET'S SHAKE HANDS! ON THE COORDINATION OF GESTURES OF HUMANOIDS .....</b>	164
<i>Zsófia Ruttkay, Herwin Van Welbergen</i>	
<b>ON THE SIMULATION OF INTERACTIVE NON-VERBAL BEHAVIOUR IN VIRTUAL HUMANS .....</b>	169
<i>John Shearer, Patrick Olivier, Marco De Boni</i>	
<b>THE CEREVOICE CHARACTERFUL SPEECH SYNTHESISER SDK.....</b>	174
<i>Matthew P. Aylett, Christopher J. Pidcock</i>	
<b>EXPRESSIVE SYNTHESIS OF READ ALOUD TALES .....</b>	179
<i>Virginia Francisco, Pablo Gervas, Monica Gonzalez, Carlos Leon</i>	
<b>KIWI: AN ENVIRONMENT FOR CAPTURING THE PERCEPTUAL CUES OF AN APPLICATION FOR AN ASSISTING CONVERSATIONAL AGENT .....</b>	187
<i>Jean-Paul Sansonnet, David Leray</i>	
<b>EDRAMA: FACILITATING ONLINE ROLE-PLAY USING EMOTIONALLY EXPRESSIVE CHARACTERS .....</b>	195
<i>Kulwant Dhaliwal, Marco Gillies, John O'Connor, Amanda Oldroyd, Dale Robertson, Li Zhang</i>	
<b>AGENT PERSONALITY TRAITS IN VIRTUAL ENVIRONMENTS BASED ON APPRAISAL THEORY PREDICTIONS .....</b>	203
<i>Lori Malatesta, George Caridakis, Amaryllis Raouzaïou, Kostas Karpouzis</i>	
<b>AN EXPRESSIVE ECA SHOWING COMPLEX EMOTIONS .....</b>	208
<i>Elisabetta Bevacqua, Maurizio Mancini, Radoslaw Niewiadomski, Catherine Pelachaud</i>	

## **4TH INTERNATIONAL SYMPOSIUM ON IMITATION IN ANIMALS AND ARTIFACTS**

<b>FROM EXPLORATION TO IMITATION: USING LEARNT INTERNAL MODELS TO IMITATE OTHERS .....</b>	218
<i>Anthony Dearden, Yiannis Demiris</i>	
<b>LEARNING MODELS OF CAMERA CONTROL FOR IMITATION IN FOOTBALL MATCHES .....</b>	227
<i>Anthony Dearden, Yiannis Demiris, Oliver Grau</i>	
<b>IMITATING THE GROOVE: MAKING DRUM MACHINES MORE HUMAN.....</b>	232
<i>Axel Tidemann, Yiannis Demiris</i>	

<b>A UNIFIED FRAMEWORK FOR IMITATION-LIKE BEHAVIORS</b> .....	241
<i>Francisco S. Melo, Manuel Lopes, José Santos-Victor, Maria Isabel Ribeiro</i>	
<b>WHEN TRAINING ENGENDEES FAILURE TO IMITATE IN GREY PARROTS (PSITTACUS ERITHACUS)</b> .....	251
<i>Irene M. Pepperberg</i>	
<b>IMITATIVE LEARNING IN MONKEYS</b> .....	256
<i>Ludwig Huber, Bernhard Voelkl, Friederike Range</i>	
<b>VISUO-COGNITIVE PERSPECTIVE TAKING FOR ACTION RECOGNITION</b> .....	262
<i>Matthew Johnson, Yiannis Demiris</i>	
<b>LEARNING BY OBSERVATION: COMPARISON OF THREE METHODS OF EMBEDDING MENTOR'S KNOWLEDGE IN REINFORCEMENT LEARNING ALGORITHMS</b> .....	270
<i>Natalia Akchurina</i>	
<b>SHARED INTENTIONAL PLANS FOR IMITATION AND COOPERATION: INTEGRATING CLUES FROM CHILD DEVELOPMENT AND NEUROPHYSIOLOGY INTO ROBOTICS</b> .....	279
<i>Peter Ford Dominey</i>	
<b>MULTIAGENT COLLABORATIVE TASK LEARNING THROUGH IMITATION</b> .....	287
<i>Sonia Chernova, Manuela Veloso</i>	
<b>ECHO STATE NETWORK APPLIED TO A ROBOT DOCKING TASK</b> .....	293
<i>Xavier Dutoit, Davy Sannen, Marnix Nuttin</i>	
<b>CAN MOTIONESE TELL INFANTS AND ROBOTS "WHAT TO IMITATE"?</b> .....	299
<i>Yukie Nagai, Katharina J. Rohlfing</i>	
<b>A THEORETICAL CONSIDERATION ON ROBOTIC IMITATION OF HUMAN ACTION ACCORDING TO DEMONSTRATION PLUS SUGGESTION</b> .....	307
<i>Masao Yokota</i>	

## **MINDFUL ENVIRONMENTS**

<b>ATTRIBUTION OF COMMUNICATIVE CAPACITY AMONG AGENTS IN A HETEROGENEOUS POPULATION</b> .....	322
<i>Melanie Baljko, Nell Tenhaaf</i>	
<b>FACIAL FEEDBACK SIGNALS FOR ECAS</b> .....	328
<i>Elisabetta Bevacqua, Dirk Heylen, Catherine Pelachaud, Marion Tellier</i>	
<b>A TWO-LEVEL BDI-AGENT MODEL FOR THEORY OF MIND AND ITS USE IN SOCIAL MANIPULATION</b> .....	335
<i>Tibor Bosse, Zulfiqar A. Memon, Jan Treur</i>	
<b>INTENTION RECOGNITION WITH DIVERGENT BELIEFS FOR COLLABORATIVE ROBOTS</b> .....	343
<i>Jesse Gray, Matt Berlin, Cynthia Breazeal</i>	
<b>TOWARDS A COMPUTATIONAL MODEL OF THE SELF-ATTRIBUTION OF AGENCY</b> .....	350
<i>Koen V. Hindriks, Pascal Wiggers, Catholijn M. Jonker, Willem F. G. Haselager</i>	
<b>MODELLING ATTENTIONALLY- AND EMOTIONALLY-SENSITIVE SOCIAL AGENTS</b> .....	357
<i>Christopher Peters</i>	
<b>ANTICIPATORY COORDINATION THROUGH ACTION OBSERVATION AND BEHAVIOR ADAPTATION</b> .....	365
<i>Michele Piunti, Cristiano Castelfranchi, Rino Falcone</i>	
<b>DERIVATION OF MINIMAL MENTAL MODELS</b> .....	372
<i>David V. Pynadath, Stacy C. Marsella</i>	
<b>FROM LANGUAGE TO THOUGHT: INFERRING OPINIONS AND BELIEFS FROM VERBAL BEHAVIOR</b> .....	377
<i>Fiorella De Rosis, Nicole Novielli</i>	

## **AI AND NARRATIVE GAMES FOR EDUCATION**

<b>PLAYER AGENCY IN INTERACTIVE NARRATIVE: AUDIENCE, ACTOR &amp; AUTHOR</b> .....	386
<i>Sean Hammond, Helen Pain, Tim J. Smith</i>	
<b>INTERACTIVE GENERATION OF DILEMMA-BASED NARRATIVES</b> .....	394
<i>Heather Barber, Daniel Kudenko</i>	
<b>FROM THE EVENT LOG OF A SOCIAL SIMULATION TO NARRATIVE DISCOURSE: CONTENT PLANNING IN STORY GENERATION</b> .....	402
<i>Carlos Leon, Samer Hassan, Pablo Gervas</i>	

<b>EFFECTS OF NARRATIVE LEVELS ON COMPREHENSION: THEORETICAL FRAMEWORK AND METHODOLOGY</b> .....	410
<i>Baptiste Campion</i>	
<b>TOWARDS A CLASSIFICATION OF VIDEO GAMES</b> .....	414
<i>Djaouti Damien, Alvarez Julian, Jessel Jean-Pierre, Methel Gilles, Molinier Pierre</i>	
<b>SERIOUS GAME: JUST A QUESTION OF POSTURE?</b> .....	420
<i>Alvarez Julian, Rampnoux Olivier, Jessel Jean Pierre, Méthel Gilles</i>	
<b>EDUCATIONAL GAMES: OVERVIEW OF SHORTCOMINGS AND PROPOSED SOLUTIONS</b> .....	427
<i>Rania Hodhod</i>	
<b>INTELLIGENT MOBILE TOUR GUIDE</b> .....	433
<i>Meiyii Lim, Ruth Aylett</i>	
<b>EVALUATING SYNTHETIC ACTORS</b> .....	439
<i>Sandy Louchart, Ruth Aylett</i>	
<b>FEARNOT! AN ANTI-BULLYING INTERVENTION: EVALUATION OF AN INTERACTIVE VIRTUAL LEARNING ENVIRONMENT</b> .....	446
<i>Scott Watson, Natalie Vannini, Megan Davis, Sarah Woods, Marc Hall</i>	
<b>A MIXED INITIATIVE AUTHORIZING ENVIRONMENT FOR EMERGENT NARRATIVE PLANNING DOMAINS</b> .....	453
<i>M. Kriegel, R. S. Aylett</i>	

## **SPATIAL REASONING AND COMMUNICATION**

<b>SPATIAL RELATIONS FOR PERCEPTUAL ANCHORING</b> .....	459
<i>Jonas Melchert, Silvia Coradeschi, Amy Loutfi</i>	
<b>SPATIAL REFERENCE IN SIMULATED HUMAN-ROBOT INTERACTION INVOLVING INTRINSICALLY ORIENTED OBJECTS</b> .....	464
<i>Thora Tenbrink, Veronika Maiseyenko, Reinhard Moratz</i>	
<b>SAILAWAY: FORMALIZING NAVIGATION RULES</b> .....	470
<i>F. Dylla, L. Frommberger, J. O. Wallgrun, D. Wolter, B. Nebel, S. Wolff</i>	
<b>A GRANULAR POINT POSITION CALCULUS FOR SOLVING AMBIGUOUS LANDMARK PROBLEMS IN COGNITIVE ROBOTICS</b> .....	475
<i>Reinhard Moratz</i>	
<b>LOCALIZATION, EXPLORATION, AND NAVIGATION BASED ON QUALITATIVE ANGLE INFORMATION</b> .....	479
<i>Frieder Stolzenburg</i>	
<b>AN ONTOLOGY OF SPATIAL RELATIONS USING FUZZY CONCRETE DOMAINS</b> .....	485
<i>Celine Hudelot, Jamal Atif, Isabelle Bloch</i>	
<b>SEMANTIC SIMILARITY OF NATURAL LANGUAGE SPATIAL RELATIONS</b> .....	491
<i>Angela Schwering</i>	
<b>Author Index</b>	