

Thirteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE'17)

Snowbird, Utah, USA
5 – 9 October 2017

ISBN: 978-1-7138-5604-7

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© (2017) by Association for the Advancement of Artificial Intelligence
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact Association for the Advancement of Artificial Intelligence
at the address below.

Association for the Advancement of Artificial Intelligence
2275 East Bayshore Road
Suite 160
Palo Alto, California 94303
USA

Phone: 1-650-328-3123
Fax: 1-650-321-4457

<https://aaai.org/Press/press.php>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

FULL ORAL PAPERS

Scheduling Live Interactive Narratives with Mixed-Integer Linear Programming	2
<i>Sasha Azad, Jingyang Xu, Haining Yu, Boyang Li</i>	
Combining Strategic Learning with Tactical Search in Real-Time Strategy Games.....	9
<i>Nicolas Barriga, Marius Stanescu, Michael Buro</i>	
Learning Combat in NetHack.....	16
<i>Jonathan Campbell, Clark Verbrugge</i>	
A Social Robot as a Card Game Player	23
<i>Filipa Correia, Patrícia Alves-Oliveira, Tiago Ribeiro, Francisco Melo, Ana Paiva</i>	
Practical Specification of Belief Manipulation in Games.....	30
<i>Markus Eger, Chris Martens</i>	
Influencing User Choices in Interactive Narratives Using Indexer's Pairwise Event Saliency Hypothesis.....	37
<i>Rachelyn Farrell, Stephen Ware</i>	
A Recommender System for Hero Line-Ups in MOBA Games.....	43
<i>Lucas Hanke, Luiz Chaimowicz</i>	
STARDATA: A StarCraft AI Research Dataset.....	50
<i>Zeming Lin, Jonas Gehring, Vasil Khalidov, Gabriel Synnaeve</i>	
Balancing Zero-Sum Games with One Variable Per Strategy	57
<i>Albert Liu, Steve Marschner</i>	
Improvised Theatre Alongside Artificial Intelligences.....	66
<i>Kory Mathewson, Piotr Mirowski</i>	
Solving for Bespoke Game Assets: Applying Style to 3D Generative Artifacts	73
<i>Jo Mazeika, Jim Whitehead</i>	
Multimodal Goal Recognition in Open-World Digital Games.....	80
<i>Wookhee Min, Bradford Mott, Jonathan Rowe, Robert Taylor, Eric Wiebe, Kristy Boyer, James Lester</i>	
HyPED: Modeling and Analyzing Action Games as Hybrid Systems	87
<i>Joseph Osborn, Brian Lambrigger, Michael Mateas</i>	
Memory Bounded Monte Carlo Tree Search.....	94
<i>Edward Powley, Peter Cowling, Daniel Whitehouse</i>	
A Possible Worlds Model of Belief for State-Space Narrative Planning	101
<i>Alireza Shirvani, Stephen Ware, Rachelyn Farrell</i>	
Deep Learning for Real-Time Heuristic Search Algorithm Selection	108
<i>Devon Sigurdson, Vadim Bulitko</i>	

Generative Design for Textiles: Opportunities and Challenges for Entertainment AI	115
<i>Gillian Smith</i>	
Studying the Effects of Training Data on Machine Learning-Based Procedural Content Generation	122
<i>Sam Snodgrass, Adam Summerville, Santiago Ontanon</i>	
Turn-Taking with Improvisational Co-Creative Agents.....	129
<i>Lauren Winston, Brian Magerko</i>	

POSTER PAPERS

Robustness of Real-Time Heuristic Search Algorithms to Read/Write Error in Externally Stored Heuristics.....	137
<i>Mina Abdi Oskouie, Vadim Bulitko</i>	
An Empirical Evaluation of a Generative Method for the Expression of Personality Traits Through Action Choice.....	144
<i>Julio Bahamon, R. Young</i>	
Reputation Systems for Non-Player Character Interactions Based on Player Actions.....	151
<i>Joseph Brown, Jooyoung Lee, Niktia Kraev</i>	
Modeling Individual Differences in Game Behavior Using HMM.....	158
<i>Sara Bunian, Alessandro Canossa, Randy Colvin, Magy Seif El-Nasr</i>	
Fast Random Genetic Search for Large-Scale RTS Combat Scenarios.....	165
<i>Corey Clark, Anthony Fleshner</i>	
Evaluation of a Template-Based Puzzle Generator for an Educational Programming Game.....	172
<i>Yihuan Dong, Tiffany Barnes</i>	
Towards Adaptability of Demonstration-Based Training of NPC Behavior	179
<i>John Drake, Alla Safonova, Maxim Likhachev</i>	
Emerging Sounds Through Implicit Cooperation: A Novel Model for Dynamic Music Generation	186
<i>Mário Escarce Junior, Georgia Rossmann Martins, Leandro Soriano Marcolino, Yuri Tavares dos Passos</i>	
Causal Link Semantics for Narrative Planning Using Numeric Fluents.....	193
<i>Rachelyn Farrell, Stephen Ware</i>	
Dante Agent Architecture for Force-On-Force Wargame Simulation and Training	200
<i>Brian Hart, Derek Hart, Russell Gayle, Fred Oppel, Patrick Xavier, Jonathan Whetzel</i>	
Predicting Victory in a Hybrid Online Competitive Game: The Case of Destiny	207
<i>Yaser Norouzzadeh Ravari, Pieter Spronck, Rafet Sifa, Anders Drachen</i>	
Bardo: Emotion-Based Music Recommendation for Tabletop Role-Playing Games.....	214
<i>Rafael Padovani, Lucas Ferreira, Levi Lelis</i>	
LISA: Lexically Intelligent Story Assistant	221
<i>Rushit Sanghrajka, Daniel Hidalgo, Patrick Chen, Mubbasir Kapadia</i>	
Level Difficulty and Player Skill Prediction in Human Computation Games	228
<i>Anurag Sarkar, Seth Cooper</i>	

Creating a Hyper-Agent for Solving Angry Birds Levels	234
<i>Matthew Stephenson, Jochen Renz</i>	
The Computational Complexity of Angry Birds and Similar Physics-Simulation Games	241
<i>Matthew Stephenson, Jochen Renz, Xiaoyu Ge</i>	
A/B-Test of Retention and Monetization Using the Cox Model	248
<i>Markus Viljanen, Antti Airola, Jukka Heikkonen, Tapio Pahikkala</i>	
Simulating Player Behavior for Data-Driven Interactive Narrative Personalization	255
<i>Pengcheng Wang, Jonathan Rowe, Wookhee Min, Bradford Mott, James Lester</i>	
Merits of Hierarchical Story and Discourse Planning with Merged Languages.....	262
<i>David Winer, R. Michael Young</i>	

DEMONSTRATIONS

Feasibility Study: Moving Non-Homogeneous Teams in Congested Video Game Environments	270
<i>Hang Ma, Jingxing Yang, Liron Cohen, T. K. Kumar, Sven Koenig</i>	
Wevva: Democratising Game Design	273
<i>Edward Powley, Mark Nelson, Swen Gaudl, Simon Colton, Blanca Pérez Ferrer, Rob Saunders, Peter Ivey, Michael Cook</i>	

DOCTORAL CONSORTIUM ABSTRACTS

Character Focused Narrative Models for Computational Storytelling	277
<i>Leonid Berov</i>	
Intentional Agents for Epistemic Games	280
<i>Markus Eger</i>	
Dream Machine: A Creative and Autonomous Machine for Creating Stories and Worlds	283
<i>Mário Escarce Junior</i>	
MTG: Context-Based Music Composition for Tabletop Role-Playing Games	286
<i>Lucas Ferreira, Jim Whitehead</i>	
Cooperative Creativity Support Tools for Computational Crafting.....	289
<i>April Grow</i>	
A Skill-Based Framework for the Generation and Presentation of Educational Videogame Content.....	292
<i>Britton Horn</i>	
Crowdsourced Social Media Poetry	295
<i>Carolyn Lamb</i>	
Pre-Learning Experiences with Co-Creative Agents in Museums	298
<i>Duri Long</i>	
Algorithm Selection in Zero-Sum Computer Games	301
<i>Anderson Tavares</i>	
Towards Expressive Automated Storytelling Systems.....	304
<i>David Winer</i>	

PLAYABLE EXPERIENCES

Playable Experiences at AIIDE 2017 308
 *Mike Treanor, Nicholas Warren, Mason Reed, Adam Smith, Pablo Ortiz, Laurel Coney, Loren
 Sherman, Elizabeth Carré, Nadya Vivatvisha, D. Harrell, Paola Mardo, Andrew Gordon,
 Joris Dormans, Barrie Robison, Spencer Gomez, Samantha Heck, Landon Wright, Terence
 Soule*

Author Index