2012 17th International Conference on Computer Games

(CGAMES 2012)

Louisville, Kentucky, USA
30 July – 1 August 2012
Contents

Programme Committee 7

International Programme Committee 8

Preface 9

Proceedings 10

Serious Games 1 11

Dyslexia diagnosis in Reading Stage through the use of games at school 12
Nuria Aresti Bartolomé, Amaia Mendez Zorrilla, and Begoña García Zapirain

Serious games for expertise training rules in questions 18
Nour El Mawas, Jean-Pierre Cahier, and Aurélien Bénel

Using a GA and Wisdom of Artificial Crowds to Solve Solitaire Battleship Puzzles 25
Roman V Yampolskiy and Aaron C Port

Intelligent Serious Games System for Children with Learning Disabilities 30
Ghada A. El Khayat, Tamer F. Mabrouk, and Adel S. Elmaghraby

Serious Games and Health Informatics: A Unified Framework 35
Adel S. Elmaghraby, Amaia Méndez, Begoña García Zapirain, Walaa M. Sheta, and Saleh A. El Shehaby

A Meta-model for Developing Simulation Games in Higher Education and Professional Development Training 39
C Shaun Longstreet and Kendra Cooper

Games Simulation 45

Factors Affecting Students’ Decision to Choose a Traditional or Role-Play Simulation Based Course Format 46
Linda Musaitif, Barbara Cox, Deana Porterfield, Mike McGirr, Charmaine Phipps, and Ryan Saunders

Real-time Motion Editing for Reaching Tasks Using Multiple Internal Graphs 51
Christos Mousas and Paul Newbury

Robot Design using the Unity Game Engine for Computer Games and Robotic Simulations 56

Procedural Textures Using Tilings With Perlin Noise 60
David Maung, Yinxuan Shi, and Roger Crawfis
Games Development

Enhancing the Performance of a Multiplayer Game by Using a Parallelizing Compiler
Yasir I Al-Dosary, Keiji Kimura, Hironori Kasahara, and Seinosuke Narita

Software Design Patterns for Enabling Auto Dynamic Difficulty in Video Games
Muhammad I Chowdhury and Michael J Katchabaw

Proposal of Game Design Document from Software Engineering Requirements Perspective
Mario Gonzalez, Hugo A Mitre, Jose L Gonzalez, and Cuauhtemoc Lemus

Navigational techniques to improve usability and user experience in RPG Games
Chris Carter, Qasim Mehdi, and Thomas P Hartley

A Gameplay Loops Formal Language
Yannick S Francillette, Abdelkader Gouaich, Nadia Hocine, and Julien Pons

Games Simulation, Graphics, Visualisation and Work in Progress

A Visualization Framework for Simulating Fuel Consumption Through Serious Games
Bryan B Sarlo, Alexander E Lambe Foster, and Mark P Wachowiak

Going Anywhere Anywhere – Creating a Low Cost Portable Immersive VE System
Eric Bachmann, James Calusdian, Eric Hodgson, Xiaoping Yun, and Michael Zmuda

Diagnosis of Attention Deficit Disorder using “D2” and “Symbol Search” tests through a game-based tool
Maite Frutos, M Begona García Zapirain, and Amaia Mendez

Innovative System for Cognitive Brain Enhancement and Language Disorders Treatment Using a Virtual Reality Environment
Nuria Aresti Bartolomé, Begoña García Zapirain, and Amaia Mendez Zorrilla

Emerging Games Platforms, Technologies and Applications and Computational Intelligence

Multi-scenario Gesture Recognition Using Kinect
Yi Li

A Framework for Interactive Generation of Music for Games
Kristopher W Reese, Roman Yampolskiy, and Adel Elmaghraby

Physics engine on reconfigurable processor - low power optimized solution empowering next-generation graphics on embedded platforms
Manti Bose and Vasantha Kumar Rajagopala
Using Discrete Wavelet Transform and Eigenfaces for Recognizing Avatars Faces
Abdallah A Mohamed and Roman V Yampolskiy 143

DRE-Bot: A Hierarchical First Person Shooter Bot Using Multiple Sarsa(\(\lambda\)) Reinforcement
Frank G Glavin and Michael G Madden 148

A Handicap Point System for Pedometer Challenges
Brian S Carter 153

Serious Games 2

Development of a Walking Game for the Elderly Using Controllers of Hand buttons and Foot Boards
Kyung Sik Kim, Seong Suk Oh, Jin Ho Ahn, and Sun Hyung Lee 158

RumbleBlocks: Teaching Science Concepts to Young Children through a Unity Game
Michael G Christel, Scott M Stevens, Bryan S Maher, Sean Brice, and Matt Champer 162

Studying Social Relations in MMOG Play: An Illustration of Using Ethnography to Frame “Big Data”
Shad Gross, David Hakken, and Nic True 167

Reinforcing Array and Loop Concepts Through a Game-Like Module
Amos Baker, Jinghua Zhang, and Elvira R. Caldwell 175

Generalizations and Optimal Solutions for Coin sorting Puzzles
Kemal Efe 180

Serious Games 3

Accidental Emergence within an Agent Based Model
Ahmad Byagowi, Danyal Mohaddes, and Robert Donald McLeod 189

The challenge of understanding tactics in a multiplayer online game: Analyzing BZFlag games of the Games United League
John C Paolillo 194

Building a Bi-Directional Bridge Between Social Presence and Social Interaction in Multi-Players Online Games
Samah Mansour and Mostafa El-Said 202

Towards Model-driven Game Engineering for Serious Educational Games: Tailored Use Cases for Game Requirements
Kendra M Cooper and Christopher S Longstreet 208

Emotions for intelligent agents in crisis management
Michael Loizou, Thomas Hartley, Sarah Slater, Robert Newman and Lucia Pannese 213
Games Development and Games Applications 220

Using Chaotic 3D Watermarking for Game Design Copy Right Protection 221
Amira E. Youssef and Walaa Sheta

In-Game Adaptation of a Navigation Mesh Cell Path 230
Thomas P Hartley and Qasim Mehdi

Mahindra EarthMaster: A Game Used in Training Heavy Construction Equipment 237
Gaurave Rane and Sahirali Momin

Modeling Car Drivers as Believable Autonomous Agents for a Traffic Control Training Game 242
Levon Ter-Isahakyan and Jerzy W Jaromczyk

Using Game Level Design as an Applied Method for Software Engineering Education 248
Ahmed Emam and Mostafa Mostafa

Comparing Behavior Trees and Emotional Behavior Networks for NPCs 253
Anja Johansson and Pierangelo Dell'Acqua

Author Index 261