

2007 IEEE Symposium on Computational Intelligence and Games

**Honolulu, HI
1-5 April 2007**



IEEE Catalog Number:
ISBN:

07EX1575
1-4244-0709-5

Table of Contents

Snooker Robot Player - 20 years on	1
<i>Kenneth H.L. Ho Trevor Martin, Jim Baldwin</i>	
Micro Robot Hockey Simulator - Game Engine Design.....	9
<i>Wayne Y. Chen, Shahram Payandeh</i>	
On Experiences in a Complex and Competitive Gaming Domain: Reinforcement Learning Meets RoboCup.....	17
<i>Martin Riedmiller and Thomas Gabel</i>	
Extracting NPC behavior from computer games using computer vision and machine learning techniques.....	24
<i>Alex Fink, Jorg Denzinger, John Aycock</i>	
Waving Real Hand Gestures Recorded by Wearable Motion Sensors to a Virtual Car and Driver in a Mixed-Reality Parking Game	32
<i>David Bannach, Oliver Amft, Kai S. Kunze, Ernst A. Heinz, Gerhard Troster, Paul Lukowicz</i>	
Adaptation of Iterated Prisoner's Dilemma Strategies by Evolution and Learning.....	40
<i>Han Yang Quek and Chi Keong Goh</i>	
Cooperation in Prisoner's Dilemma on Graphs	48
<i>Daniel A. Ashlock</i>	
Information Sharing in the Iterated Prisoner's Dilemma Game.....	56
<i>Ayman Ghoneim, Hussein Abbass, Michael Barlow</i>	
A Comparison of Genetic Programming and Look-up Table Learning for the Game of Spoof	63
<i>Mark Wittkamp, Luigi Barone, and Lyndon While</i>	
Using a Genetic Algorithm to Explore A*-like Pathfinding Algorithms	72
<i>Ryan Leigh, Sushil J. Louis and Chris Miles</i>	
Adversarial Planning Through Strategy Simulation.....	80
<i>Frantisek Sailer, Michael Buro and Marc Lanctot</i>	
Co-Evolving Influence Map Tree Based Strategy Game Players	88
<i>Chris Miles, Juan Quiroz, Ryan Leigh, Sushil J. Louis</i>	
Modelling the Evolution of Cooperative Behavior in Ad Hoc Networks using a Game Based Model	96
<i>Marcin Sredynski, Pascal Bouvry, Mieczyslaw A. Klopotek</i>	
A Historical Population in a Coevolutionary System	104
<i>Phillipa M. Avery, Zbigniew Michalewicz, Martin Schmidt</i>	
Effective Use of Transposition Tables in Stochastic Game Tree Search.....	112
<i>Joel Veness, Alan Blair</i>	
An Investigation into Tournament Poker Strategy using Evolutionary Algorithms	117
<i>Richard G. Carter, John Levine</i>	
Bayesian Opponent Modeling in a Simple Poker Environment	125
<i>Roderick Baker, Peter Cowling</i>	
Computer Strategies for Solitaire Yahtzee.....	132
<i>James R. Glenn</i>	
Concept Accessibility as Basis for Evolutionary Reinforcement Learning of Dots and Boxes	140
<i>Anthony Knittel, Terry Bossomaier, Allan Snyder</i>	
Tournament Particle Swarm Optimization.....	146
<i>Willem H. Duminy, Andries P. Engelbrecht</i>	
NEAT Particles: Design, Representation, and Animation of Particle System Effects	154
<i>Erin Hastings, Ratan Guha and Kenneth O. Stanley</i>	

Table of Contents

Using Stochastic AI Techniques to Achieve Unbounded Resolution in Finite Player Goore Games and its Applications.....	161
<i>B. John Oommen, Ole-Christoffer Granmo, Asle Pedersen</i>	
Evolving Players for an Ancient Game: Hnefatafl.....	168
<i>Philip Hingston</i>	
Modifications of UCT and sequence-like simulations for Monte-Carlo Go	175
<i>Yizao Wang, Sylvain Gelly</i>	
Board Representations for Neural Go Players Learning by Temporal Difference.....	183
<i>Helmut A. Mayer</i>	
Move Prediction in Go with the Maximum Entropy Method.....	189
<i>Nobuo Araki, Kazuhiro Yoshida, Yoshimasa Tsuruoka and Junichi Tsujii</i>	
Hybrid Evolutionary Learning Approaches for The Virus Game	196
<i>M.H. Naveed, P.I. Cowling and M.A. Hossain</i>	
Hybrid of Evolution and Reinforcement Learning for Othello Players.....	203
<i>Kyung-Joong Kim, Heejin Choi and Sung-Bae Cho</i>	
Effect of look-ahead search depth in learning position evaluation functions for Othello using epsilon-greedy exploration	210
<i>Thomas Philip Runarsson, Egill O. Jonsson</i>	
Temporal Difference Learning of an Othello Evaluation Function for a Small Neural Network with Shared Weights.....	216
<i>Edward P. Manning</i>	
Solving Japanese Puzzles with Heuristics.....	224
<i>Sancho Salcedo-Sanz, Emilio G. Ortiz-Garcia, Angel M. Perez-Bellido, Antonio Portilla-Figueras and Xin Yao</i>	
The Evolution of Multi-Layer Neural Networks for the Control of Xpilot Agents.....	232
<i>Matt Parker, Gary B. Parker</i>	
Evolving Parameters for Xpilot Combat Agents.....	238
<i>Gary B. Parker, Matt Parker</i>	
Game and Player Feature Selection for Entertainment Capture	244
<i>Georgios N. Yannakakis and John Hallam</i>	
Towards automatic personalised content creation for racing games	252
<i>Julian Togelius, Renzo De Nardi and Simon M. Lucas</i>	
Point-to-Point Car Racing: an Initial Study of Evolution Versus Temporal Difference Learning	260
<i>Simon M. Lucas and Julian Togelius</i>	
Automatic Generation of Evaluation Features for Computer Game Players	268
<i>Makoto Miwa, Daisaku Yokoyama, Takashi Chikayama</i>	
A Multi-Agent Architecture for General Game Playing.....	276
<i>Ziad Kobti, Shiven Sharma</i>	
Evolving Pac-Man Players: Can We Learn from Raw Input?	282
<i>Marcus Gallagher and Mark Ledwich</i>	
Reward Allotment Considered Roles for Learning Classifier System	288
<i>Yosuke Akatsuka, Yuji Sato</i>	
Inferring the Past: A Computational Exploration of the Strategies that May Have Been Used in the Aztec Board Game of Patolli	296
<i>Andrés Gómez de Silva Garza, Carlos Emilio Galindo Flores</i>	
Pareto Evolution and Co-Evolution in Cognitive Neural Agents Synthesis for Tic-Tac-Toe	304
<i>Yi Jack Yau, Jason Teo and Patricia Anthony</i>	

Table of Contents

Game AI in Delta3D	312
<i>Christian J. Darken, Bradley G. Anderegg, Perry L. McDowell</i>	
Coevolving Strategies for General Game Playing.....	320
<i>Joseph Reisinger, Erkin Bahceci, Igor Karpov and Risto Miikkulainen</i>	
EvoTanks: Co-Evolutionary Development of Game-Playing Agents.....	328
<i>Thomas Thompson, John Levine, Gillian Hayes</i>	
Evolutionary Computation for Designing Game Rules of the COMMONS GAME	334
<i>Hisashi Handa, Norio Baba</i>	
Fuzzy Prolog as Cognitive Layer in RoboCupSoccer.....	340
<i>Susana Muñoz-Hernandez, Wiratna Sari Wiguna</i>	
Genetic Algorithms for Finding Optimal Strategies for a Student's Game.....	346
<i>Thomas Butter, Franz Rothlauf, Jorn Grahl, Tobias Hildenbrand, Jens Arndt</i>	
Vidya: A God Game Based on Intelligent Agents Whose Actions are Devised Through Evolutionary Computation.....	352
<i>Marcelo R. de Souza Pita, Salomão Sampaio Madeiro and Fernando Buarque de Lima Neto</i>	
Discovering Chinese Chess Strategies through Coevolutionary Approaches.....	360
<i>C. S. Ong, H. Y. Quek, K. C. Tan and A. Tay</i>	
Bridge Bidding with Imperfect Information	368
<i>Lori L. DeLooze, James Downey</i>	
The Game of Synchronized Cutcake.....	374
<i>Alessandro Cincotti, Hiroyuki Iida</i>	
Toward a Competitive Pool Playing Robot: Is Computational Intelligence Needed to Play Robotic Pool?.....	380
<i>Michael Greenspan, Joseph Lam, Will Leckie, Marc Godard, Imran Zaidi, Ken Anderson, Donna Dupuis, Sam Jordan</i>	