CIG-2017
NEW YORK CITY
22-25 AUGUST

CONFERENCE PROGRAM

The conference was held between August 22-25. For the full conference program, plea download the **Conference Program**.

Detailed Session Information

Session 1: Tree Search and Multiple Worlds | Chaired by Mark Winands (Tuesday 1 am)

- Monte Carlo Tree Search Experiments in Hearthstone (André Santos, Pedro A. Sant Francisco S. Melo)
- Using Monte Carlo Tree Search and Google Maps to improve Game Balancing in Location-based Games (Luis Fernando Maia, Windson Viana and Fernando Trinta)
- Monte Carlo Tree Search Based Algorithms for Dynamic Difficulty Adjustment (Sim Demediuk, Marco Tamassia, William Raffe, Fabio Zambetta, Xiaodong Li and Florian F Mueller)
- Using Multiple Worlds for Multiple Agent Roles in Games (Joseph Alexander Brown Daniel Ashlock)

Session 2: Player modeling | Chaired by Anna Guitart (Tuesday 1:40 pm)

- 3D Cylindrical Trace Transform based feature extraction for effective human action classification (Georgios Goudelis, Georgios Tsatiris, Kostas Karpouzis and Stefanos Ko
- Simulating Strategy and Dexterity for Puzzle Games (Aaron Isaksen, Drew Wallace, Finkelstein and Andy Nealen)
- Measuring Strategic Depth in Games Using Hierarchical Knowledge Bases (Daan Apeldoorn and Vanessa Volz)
- Detecting Flow in Games using Facial Expressions (Andrew Burns and James Tulip)

Session 3: Best paper nominees | Chaired by Julian Togelius and Andy Nealen (Wednesday 11:00 am)

- Text-based Adventures of the Golovin AI Agent (Bartosz Kostka, Jaroslaw Kwiecien Jakub Kowalski and Pawel Rychlikowski)
- A Fuzzy System Approach for Choosing Public Goods Game Strategies (Garry Greenwood)
- DLNE: A Hybridization of Deep Learning and Neuroevolution for Visual Control (An Precht Poulsen, Mark Thorhauge, Mikkel Hvilshøj Funch and Sebastian Risi)
- Improving Hearthstone AI by Learning High-Level Rollout Policies and Bucketing C Node Events (Shuyi Zhang and Michael Buro)

Session 4: Intentional and believable behavior | Chaired by Joanna Bryson (Wedn 1:40 pm)

- CiF-CK: An Architecture for Social NPCs in Commercial Games (Manuel Guimarães, A. Santos and Arnav Jhala)
- An Intentional AI for Hanabi (Markus Eger, Chris Martens and Marcela Alfaro Córdol
- Learning Human-like Behaviors using NeuroEvolution with Statistical Penalties (Ph Luong, Naoto Kanazawa and Kokolo Ikeda)
- Automated Learning of Hierarchical Task Networks for Controlling Minecraft Agent (Chanh “sam” Nguyen, Noah Reifsnyder, Sriram Gopalakrishnan and Hector Munoz-Av

Session 5: RTS games | Chaired by Jialin Liu (Wednesday 3:50 pm)

- Single Believe State Generation for Partially Observable Real-Time Strategy Games (Alberto Uriarte and Santiago Ontañón)
- Learning Macromanagement in StarCraft from Replays using Deep Learning (Niels Justesen and Sebastian Risi)

- Resource-Gathering Algorithms in the Game of StarCraft (Martin L.M. Rooijackers a Mark H. M. Winands)
- Combining Cooperative and Adverserial Coevolution in the Context of Pac-Man (Alexander Dockhorn and Rudolf Kruse)

Session 6: Learning to play | Chaired by Simon Lucas (Wednesday 5:30 pm)

- Autoencoder-augmented Neuroevolution for Visual Doom Playing (Samuel Alverna Julian Togelius)
- Improving Generalization Ability in a Puzzle Game Using Reinforcement Learning (Oonishi and Hitoshi Lima)

Short papers | Chaired by Dan Ashlock (Thursday 11:00 am)

- Towards a Hybrid Neural and Evolutionary Heuristic Approach for Playing Tile-mat Puzzle Games (Jose Font, Sergio Larrodera, Daniel Manrique and Pablo Ramos)
- Deep Q Networks for Visual Fighting Game AI (Seonghun Yoon and Kyung-Joong K
- Optimizing Game Live Service for Mobile Free-to-Play Games (Sang-Kwang Lee and Seong-Il Yang)
- Games and Big Data: A Scalable Multi-Dimensional Churn Prediction Model (Paul Bertens, Anna Guitart and Africa Perianez)
- Cellular Automata Simulation on FPGA for Training Neural Networks with Virtual W Imagery (Olivier Van Acker, Oded Lachish and Graeme Burnett)
- Learning to Play Visual Doom using Model-Free Episodic Control (Byeongjun Min a Kyungjoong Kim)
- Extracting Gamers' Cognitive Psychological Features and Improving Performance o Churn Prediction from Mobile Games (Jihoon Jeon, Dumim Yoon, Seongil Yang and Ky Joong Kim)
- Opponent Modeling based on Action Table for MCTS-based Fighting Game AI (Man Kim and Kyung-Joong Kim)

Session 7: PCG I | Chaired by Sebastian Risi (Thursday 3:50 pm)

- Generating Varied, Stable and Solvable Levels for Angry Birds Style Physics Games (Matthew Stephenson and Jochen Renz)
- Mixed-Initiative Procedural Generation of Dungeons using Game Design Patterns (Alexander Baldwin, Steve Dahlskog, Jose Font and Johan Holmberg)

- Fight or Flight: Evolving Maps for Cube 2 to Foster a Fleeing Behavior (Daniele Loia and Luca Arnaboldi)
- Automated Game Design Learning (Joseph Osborn, Adam Summerville and Micha Mateas)

Session 8: General Video Game AI | Chaired by Gabriella Alves Bulhoes Barros (Fri 11:00 am)

- Rolling Horizon Evolution Enhancements in General Video Game Playing (Raluca D Gaina, Simon M. Lucas and Diego Perez-Liebana)
- Beyond Playing to Win: Diversifying Heuristics for GVGAI (Cristina Guerrero-Romer Annie P. Louis and Diego Perez-Liebana)
- Monte Carlo Tree Search with Temporal-Difference Learning for General Video Gam Playing (Ercüment İlhan and A. Şima Etaner-Uyar)
- Introducing Real World Physics and Macro-Actions to General Video Game AI (Dieg Perez, Matthew Stephenson, Raluca Gaina, Jochen Renz and Simon Lucas)

Session 9: PCG II | Chaired by Gina Grossi (Friday 1:40 pm)

- General Video Game Rule Generation (Ahmed Khalifa, Michael Cerny Green, Diego Liebana and Julian Togelius)
- Building an Automatic Sprite Generator with Deep Convolutional Generative Adver Networks (Lewis Horsley and Diego Perez)
- Procedural Level Generation using Multi-layer Level Representations with MdMCs (Snodgrass and Santiago Ontañón)
- Procedural Generation of Angry Birds Fun Levels using Pattern-Struct and Preset-M (Yu Xuan Jiang, Tomohiro Harada and Ruck Thawonmas)

Session 10: Frameworks and formalisms | Chaired by Christoph Salge (Friday 3:50

- Evolved Communication Strategies and Emergent Behaviour of Multi-Agents in Pu Domains (Gina Grossi and Brian Ross)
- Showdown AI Competition (Scott Lee and Julian Togelius)
- Adaptive gameplay for mobile gaming (Yannick Francillette, Abdelkader Gouaich a Lylia Abrouk)
- General Video Game Playing Escapes the No Free Lunch Theorem (Daniel Ashlock, Perez-Liebana and Amanda Saunders)

Detailed Competition Information

Tuesday Competition Session

- StarCraft AI Competition (15 mins)
- Visual Doom AI Competition 2017: Limited Deathmatch on a Known Map Track (10
- Visual Doom AI Competition 2017: Full Deathmatch on an Unknown Map Track (10
- microRTS AI Competition (15 mins)
- Fighting Game AI Competition (15 mins)
- Geometry Friends Cooperative Game AI Competition: The Cooperation Track (10 m
- Geometry Friends Cooperative Game AI Competition: The Single AI Track (10 mins)
- The Showdown AI Competition (15 mins)

Thursday Competition Session

- The General Video Game AI Competition: Learning Track (10 mins)
- The General Video Game AI Competition: Level Generation Track (10 mins)
- Game Data Mining Competition: Churn Prediction Track (10 mins)
- Game Data Mining Competition: Survival Analysis Track (10 mins)
- AIBIRDS Level Generation Competition (15 mins)
- The Text-Based Adventure AI Competition (15 mins)
- The Ms. Pac-Man Vs Ghost Team Competition: Ms. Pac-Man Track (10 mins)
- The Ms. Pac-Man Vs Ghost Team Competition: Ghost Team Track (10 mins)