Conference Program

All presentations will be in held in the Jot Travis Student Union (JTSU) room 246 - the Alumni Room. Coffee and other breaks will be in JTSU 245, right next door. The poster session is in the Pine Lounge which is also in the JTSU.

Sunday May 21, 2006

1800 - 2000: Reception at Silver Legacy's Silver Baron Room D

Monday May 22, 2006

0815 - 0850: Breakfast/Registration (JTSU 245)

0850 - 0900: Welcome - Sushil Louis

0900 - 1000: Plenary: Ian Lane Davis: *Challenges for Game AI*

1000 - 1030: Coffee

1030 - 1210: Session 1: Simon Lucas

> **1030 - 1055:** *ChessBrain II - A Hierarchical Infrastructure for Distributed Inhomogeneous Speed-Critical Computation.* Colin M. Frayn, Carlos Justiniano and Kevin Lew
>
> **1055 - 1120:** *Grid-Robot Drivers: an Evolutionary Multi-agent Virtual Robotics Task.* Daniel Ashlock
>
> **1120 - 1145:** *Optimization of data structures, heuristics and algorithms for path-finding on maps.* Tristan Cazenav
>
> **1145 - 1210:** *Decentralized Decision Making in the Game of Tic-tac-toe.* Edwin Soedarmadji

1210 - 1320: Lunch Provided in JTSU 245

1320 - 1525: Session 2: Luigi Barone

> **1320 - 1345:** *Integration and Evaluation of Exploration-Based Learning in Games.* Igor V. Karpov, Thomas D'Silva, Craig Varrichio, Kenneth O. Stanley, Risto Miikkulainen
>
> **1345 - 1410:** *A Coevolutionary Model for The Virus Game.* P.I.Cowling, M.H.Naveed and M.A. Hossain
>
> **1410 - 1435:** *Temporal Difference Learning Versus Co-Evolution for Acquiring Othello Position Evaluation.* Simon M. Lucas and Thomas P. Runarsson
>
> **1435 - 1500:** *The Effect of Using Match History on the Evolution of RoboCup Soccer Team Strategies.* Tomoharu Nakashima, Masahiro Takatani, Hisao Ishibuchi and Manabu Nii
>
> **1500 - 1525:** *Training Bao Game-Playing Agents using Coevolutionary Particle.* Johan Conradie and Andries P. Engelbrecht

1525 - 1600: Coffee

1600 - 1730: Poster Session (Pine Lounge, JTSU)

Dinner: On your own

Tuesday May 23, 2006

0815 - 0900: Breakfast/Registration (JTSU 245)

0900 - 1040: Session 3: Jordan Pollack

    0900 - 0925: *Towards the Co-Evolution of Influence Map Tree Based Strategy Game Players.* Chris Miles and Sushil J. Louis

    0925 - 0950: *A Player for Tactical Air Strike Games Using Evolutionary Computation.* Aaron J. Rice, John R. McDonnell, Andy Spydell and Stewart Stremler

    0950 - 1015: *Exploiting Sensor Symmetries in Example-based Training for Intelligent Agents.* Bobby D. Bryant and Risto Miikkulainen

    1015 - 1040: *Using Wearable Sensors for Real-Time Recognition Tasks in Games of Martial Arts - An Initial Experiment.* Ernst A. Heinz, Kai S. Kunze, Matthias Gruber, David Bannach and Paul Lukowicz

1040 - 1100: Coffee

1100 - 1215: Session 4: David Fogel

    1100 - 1125: *Self-Adapting Payoff Matrices in Repeated Interactions.* Siang Y. Chong and Xin Yao

    1125 - 1150: *Training Function Stacks to play the Iterated Prisoner's Dilemma.* Daniel Ashlock

    1150 - 1215: *Optimization Problem Solving using Predator/Prey Games and Cultural Algorithms.* Robert G. Reynolds, Mostafa Ali and Raja' S. Alomari

1215 - 1300: Lunch provided in JTSU 245

1300 - 1330: Transportation to International Game Technology Campus

1330 - 1430: Plenary: Murray Campbell: *Looking Back at Deep Blue*

1500 - 1600: IGT tour

1600 - 1800: Transportation back to conference hotel

1800 - 2000: Conference banquet at Silver Legacy's Silver Baron Room D

Wednesday May 24, 2006

0815 - 0900: Breakfast/Registration (JTSU 245)

0900 - 1000: Plenary: Michael Van Lent: *Beyond Entertainment: AI Challenges for Serious Games*

1000 - 1030: Coffee

1030 - 1235: Session 5: Bruno Bouzy

> **1030 - 1055:** *Capturing The Information Conveyed By Opponents' Betting Behavior in Poker.* Eric Saund
>
> **1055 - 1120:** *Modeling Children's Entertainment in the Playware Playground.* Georgios N. Yannakakis, Henrik Hautop Lund and John Hallam
>
> **1120 - 1145:** *NPCs and Chatterbots with Personality and Emotional Response.* Dana Vrajitoru
>
> **1145 - 1210:** *A Behavior-Based Architecture for Realistic Autonomous Ship Control.* Adam Olenderski, Monica Nicolescu and Sushil J. Louis
>
> **1210 - 1235:** *Modelling and Simulation of Combat ID - the INCIDER Model.* Vincent A., Dean D., Hynd K., Mistry B. and Syms P

1235 - 1345: Lunch Provided in JTSU 245

1345 - 1525: Session 6: Risto Miikkulainen

> **1345 - 1410:** *Evolving Adaptive Play for the Game of Spoof Using Genetic Programming.* Mark Wittkamp and Luigi Barone
>
> **1410 - 1435:** *A Comparison of Different Adaptive Learning Techniques for Opponent Modelling in the Game of Guess It.* Anthony Di Pietro, Luigi Barone, and Lyndon While
>
> **1435 - 1500:** *Improving Artificial Intelligence In a Motocross Game.* Benoit Chaperot and Colin Fyfe
>
> **1500 - 1525:** *Monte-Carlo Go Reinforcement Learning Experiments.* Bruno Bouzy and Guillaume Chaslot

Conference Ends

Posters

- *Optimal Strategies of the Iterated Prisoner's Dilemma Problem for Multiple Conflicting Objectives.* Shashi Mittal and Kalyanmoy Deb

- *Trappy Minimax - using Iterative Deepening to Identify and Set Traps in Two-Player Games.* V. Scott Gordon and Ahmed Reda

- *Evaluating Individual Player Strategies in a Collaborative Incomplete-Information Agent-Based Game Playing Environment.* Andrs Gmez de Silva Garza

- *Highly Volatile Game Tree Search in Chain Reaction.* Dafyd Jenkins and Colin Frayn

- *Towards Generation of Complex Game Worlds.* Telmo L. T. Menezes, Tiago R. Baptista, and Ernesto J. F. Costa

- *The Blondie25 Chess Program Competes Against Fritz 8.0 and a Human Chess Master.* David B. Fogel, Timothy J. Hays, Sarah L. Hahn and James Quon

- *Anomaly Detection in Magnetic Motion Capture using a 2-Layer SOM network.* Iain Miller, Stephen McGlinchey and Benoit Chaperot

- *Intelligent Battle Gaming Pragmatics with Belief Network Trees.* Carl G. Looney

- *Fun in Slots.* Kevin Burns

- *Style in Poker* Kevin Burns

- *Voronoi game on graphs and its complexity.* Sachio Teramoto, Erik D. Demaine and Ryuhei Uehara

- *Evolving Warriors for the Nano Core.* Ernesto Sanchez, Massimiliano Schillaci and Giovanni Squillero

Plenary Program

We have a plenary scheduled for each day.

Monday, 09:00 - 10:00 Ian Lan Davis *Challenges for Game AI*

The Video Game industry has grown rapidly in the last few years, and the demand for more compelling and convincing characters, opponents, and comrades in games has made AI one of the hottest areas for research in games. Additionally, the AI and simulation techiques found in games have broad application in "serious" simulations of all sorts, and game developers find a lot of common areas of interest with academic and industry researchers. In this talk, I will give an overview of the AI problems found in both First Person and Strategy games, and tie this into areas of AI outside of the video game industry. Video Games turn out to be the ultimate laboratory for developing the most advanced and successful AI techniques, and we'll look at the current state of the art as well as the open problems now and in the near future

Tuesday, 13:30 - 14:30 Murray Campbell: *Looking Back at Deep Blue*

It has been nine years since IBM Research's Deep Blue defeated Garry Kasparov, the then-reigning world chess champion, in an epic six-game match that was closely watched by millions. In this talk I will present the background that led up to the decisive match, review the match itself, and discuss some of the broader implications of Deep Blue's victory. Issues I will cover include Deep Blue's connections to high-performance computing, what "intelligence" really means, and the roles that games play in the fields of artificial intelligence, education, and entertainment.

Wednesday 09:00 - 10:00 Michael Van Lent: *Beyond Entertainment: AI Challenges for Serious Games*

In the commercial video game industry artificial intelligence (AI) is starting to rival graphics as the key technology component that sells games. Most game reviews comment on the quality of the title's artificial intelligence for better or worse. Games with innovative AI, such as The Sims and F.E.A.R., are often top sellers. As a result game studios are actively exploring new AI techniques that fit within the many constraints of the commercial development process. Serious games, which focus on non-entertainment goals such as education, training, and communication, pose different AI challenges and have different constraints. The University of Southern California's Institute for Creative Technologies has developed ten different serious games, largely focused on military training, and has a number of research efforts focused on artificial intelligence for serious games. While these research efforts focus on the AI requirements of serious games, they often suggest innovations that have potential applications in the entertainment game industry as well.