

# The 23<sup>rd</sup> International Florida Artificial Intelligence Research Society Conference

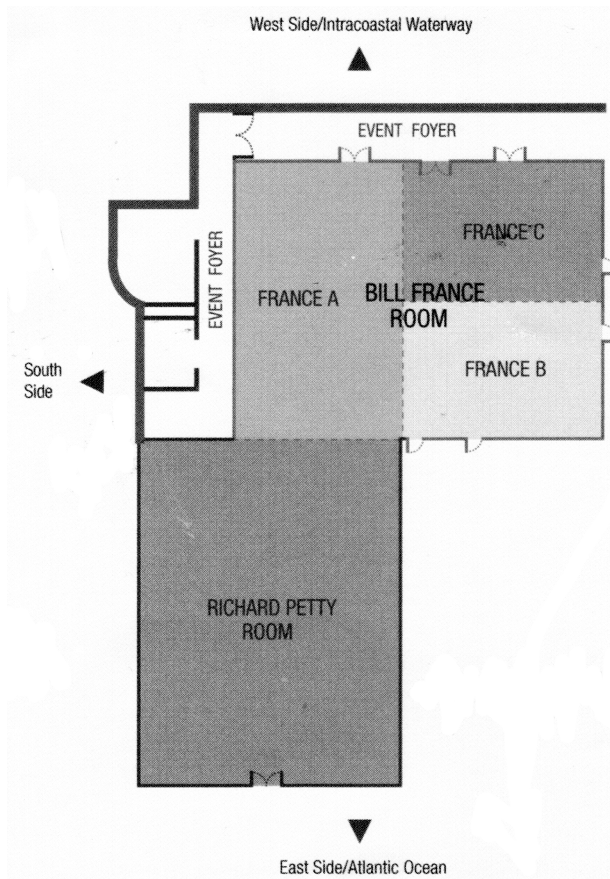


## **FLAIRS-23**

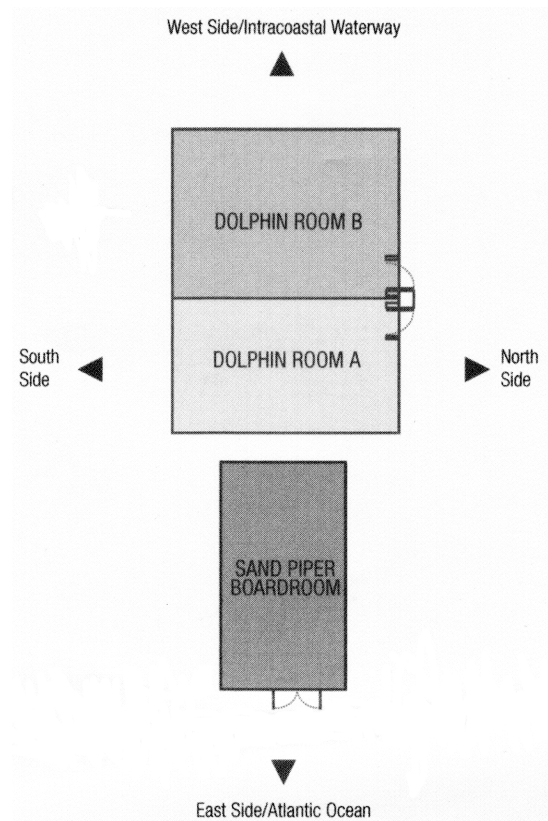
### **Program of Events**

**The Shores Resort & Spa  
Daytona Beach, Florida, USA  
May 19 – 21, 2010**

## Lobby Level

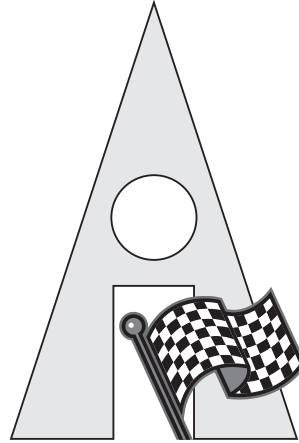


## Mezzanine Level



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Daytona Beach, Florida, USA  
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### **Welcome from the Conference Chairs**

Welcome to the 23rd International FLAIRS Conference and to Daytona Beach! We are looking forward to an engaging selection of peer-reviewed papers and posters. Furthermore, we are pleased to present a superlative group of invited speakers. Our General Conference Invited Speakers are Eugene Charniak, Herbert H. Clark, and Janet L. Kolodner. Our Special Track Invited Speakers are Anthony Cohn for Spatio-Temporal Reasoning; Jean-Pierre Desclés for AI, Cognitive Semantics, and Computational Linguistics; Sidney D'Mello for Intelligent Tutoring Systems; Dany Guevara for Games & Entertainment; and David Poole for Uncertain Reasoning. Abstracts for all of these talks can be found within these pages. In addition, two Special Tracks –Games & Entertainment and Intelligent Tutoring Systems – will hold a joint panel on their shared interests in education and entertainment.

This conference is the product of collaboration among many people with whom we have been privileged to work. We are grateful for the efforts of the Special Track Coordinator, Phil McCarthy, the Special Track organizers, and all the General Conference and Special Track Program Committee members and reviewers. The authors who submitted to FLAIRS – of both accepted and non-accepted submissions – are the heart of this event. We thank the invited speakers for attending and for presenting their much anticipated talks. Special thanks go to Jeanni Gerber for administering the conference, Gayle Hess for designing the conference logo, Leslie Wheeler for the program cover photo taken from Ponce Inlet near the lighthouse, the Florida Artificial International Research Society for maintaining the conference series, AAAI for its cooperation with the conference, Mike Hamilton for organizing the publication of the proceedings, EasyChair for hosting the review process, and the students and staff that have helped prepare and run the program.

We have been looking forward to the conference and to meeting you. We hope you find the program exciting, the reception, golf and other social events entertaining, and that you find time to explore and enjoy Daytona Beach.

– *David Wilson (General Chair), Chas Murray & Hans W. Guesgen (Program Co-Chairs)*

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## Cognition and AI: Capturing Cognitive Plausibility and Informing Psychological Processes

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## General Conference Invited Talks

*Richard Petty Room*

### **EM Works for Pronoun-Anaphora Resolution**

*Eugene Charniak*

Brown University, USA

Wednesday, May 19, 9:00am-10:00am (Session 1)

EM (the Expectation Maximization Algorithm) is a well known technique for unsupervised learning (where one does not have any hand labeled solutions available, but instead one must learn from the raw text). Unfortunately EM is known to fail to find good solutions in many (most?) applications on which it is tried. In this talk we present work on using EM to learn how to resolve pronoun-anaphora, e.g., determining that "the dog" is the antecedent of "he" and "his" in "When Sally fed the dog he wagged his tail". For this application EM works strikingly well, determining tens of thousands of parameters and resulting in a program that produces state of the art performance.

### **Rational Ways of Talking**

*Herbert H. Clark*

Stanford University, USA

Thursday, May 20, 9:00am-10:00am (Session 5)

When people talk, they do many things that may seem irrational. They repeat words, prolong words, introduce the fillers *uh* and *um*, interrupt themselves, and make mistakes they immediately correct. They are cooperative with their partners in conversation, and yet they may interrupt their partners, overlap their partners' speech, and add superfluous words such as *uh huh* and *yeah*. But are these actions *irrational*? I will argue no. Most of these phenomena reflect the rational techniques of people in conversation trying to deal with their limited knowledge and processing capacities. Ideal people may have omniscient rationality, but actual people have bounded rationality, and for them, these techniques are not merely optimal but necessary.

### **How Can We Help People Develop their Creativity?**

*Janet L. Kolodner*

Georgia Institute of Technology, USA

Friday, May 21, 9:00am-10:00am (Session 10)

There are many systems out there that help people create more creative products. But creating products and systematically taking a creative approach to solving problems and designing are two different things. How can we help people develop more creative problem solving and design capabilities? Research on the processes involved in being creative provides some clues. So does research on helping kids learn to be scientific reasoners. In this talk, I bring the two together -- using what we know about processes involved in creative reasoning and what we know about helping children learn reasoning skills to propose ways of helping people become systematically creative. I suggest a pedagogical approach (one based on what case-based reasoning suggests about promoting learning) and several types of software resources to support such learning -- a special type of simulation and modeling system, a special type of case library, and software in support of story telling.

## Special Track Invited Talks and Panels

### *Uncertain Reasoning*

#### **What Should the World-Wide Mind Believe? Knowledge and Uncertainty at a Global Scale**

*David Poole, University of British Columbia, Canada*

Wednesday, May 19, 1:45pm-3:00pm, France A Room (Session 3b)

Current search engines make recommendations based on popularity or appeal to authority. Scientists know that popularity and authority are not an appropriate basis for belief; our beliefs should be based on evidence. This talk outlines how publishing ontologies, data and probabilistic hypotheses/theories can let us base beliefs on evidence, and how the resulting world-wide mind can go beyond the aggregation of human knowledge. This is based on the foundations of the Semantic Web, probabilistic reasoning and machine learning. Data is published with reference to ontologies. Hypotheses that make (probabilistic) predictions on the data are also published. The hypotheses can be judged by all of the data they make predictions on. Given a query, a search engine can find the hypotheses that predict a value for the query and best fit the available evidence. By enabling people to publish observational data and hypotheses, the hypotheses that best fit the data, the theories, will be able to be used for prediction. This talk will overview the technology behind this vision and the considerable technical and social problems that remain.

### *AI, Cognitive Semantics, & Computational Linguistics*

#### **Reasoning in Natural Language in using Combinatory Logic and Topology**

*Jean-Pierre Desclés, Université de Paris-Sorbonne, France*

Wednesday, May 19, 3:30pm-5:10pm, France B/C Room (Session 4c)

Curry's Combinatory Logic (CL) is a logical formalism to study the intrinsic compositions of operators. *Aspect* is an operator 'ASP<sub>i</sub>' applied to a predicative relation realized onto a topological interval 'I' of instants (that is: true at each instant of this interval 'I'). Different aspectual values of 'ASP<sub>i</sub>' are concerned: *state* (STATE) or *process* (PROC) or *event* (EVEN) realized onto different types of topological intervals. It is shown how CL is used to take into account: (i) formal representations of verbal meanings by cognitive schemes; (ii) aspectual values and temporal relations between topological intervals in a computational and cognitive approach of the relations to speaking act. An example of a "natural inference" between two utterances like *John took Mary's pen* → *Now, John has got the pen* is used to explain the different steps of a formal processing with the framework of a polystratal computational model - Cognitive Applicative Grammar - which provides an useful interplay between cognitive representations and morpho-syntactic configurations by means of compositions of operators by combinators of the CL and functional types of Categorical Grammars.

### *Games & Entertainment*

#### **How AI is Applied to Commercial Games**

*Dany Guevara, Electronic Arts, USA*

Wednesday, May 19, 4:20pm-5:10pm, Richard Petty Room (Session 4a)

Discuss the use of AI in Madden NFL, NBA Live 10, Fight Night 4, and Tiger Woods Online. Presentation will cover state-driven agent design and graph search algorithms in these games. Most of the talk will focus on EA's Adaptive AI systems. Most of the AI algorithms are simple, but we drive them with real world data by tracking user tendencies, developing character profiles, and even using real-time data such as the Synergy Statistics engine in NBA Live 10, which has been rebranded DNA. By making the AI data driven, EA has been able to deliver that "In the Game Feeling" in a short development time while iteratively improving on the AI by collecting and improve the quality of the data used to make decisions in game.

## Special Track Invited Talks and Panels - *continued*

### *Spatio-Temporal Reasoning*

#### **A Qualitative Spatio-Temporal Approach to Activity Recognition and Object Classification**

*Anthony Cohn, University of Leeds, United Kingdom*

Thursday, May 20, 10:55am-12:10pm, Richard Petty Room (Session 6a)

In this talk I will present qualitative spatio-temporal approaches to the problem of activity recognition from sensory inputs, in particular video data. In particular, I will discuss an unsupervised approach to learning a model of event classes. Event classes are described in terms of qualitative spatio-temporal relational graphs, which abstract away from particular event instances. Having formed these event classes, object categories can be formed by clustering those objects which take the same roles in a particular event, yielding a taxonomy of objects formed by their *behaviour* rather than their appearance. I will present experimental results from two domains: a kitchen scenario, and aircraft turnovers. This research has been funded by the EU under grants FP7-ICT-214975, FP7-ICT-248290-COGNITO, and by the EPSRC under grant EP/D061334/1) and is in collaboration with colleagues at the University of Leeds.

### *Intelligent Tutoring Systems*

#### **Emotion Detection and Emotionally-Sensitive Computer Tutoring**

*Sidney D'Mello, University of Memphis, USA*

Thursday, May 20, 1:45pm-3:00pm, France A Room (Session 7b)

The last decade has witnessed a surge in research activities aimed at developing computer interfaces that detect and respond to users' emotions. These affect-sensitive interfaces attempt to crack the communication barrier between the highly emotional human and the socially deficit computer. However, reliable detection of affect is a critical challenge that is hindering major progress in this area. This talk will describe methods to automatically detect spontaneously occurring affective states (e.g. confusion, frustration, boredom, flow/engagement) through a combination of conversational cues, gross body language, facial features, and language. I will also discuss methods that detect emotional changes embodied in subtle bodily movements via fractal signatures and recurrence patterns. I will describe the application of these affect detectors in a fully-automated intelligent computer tutor that is sensitive to learners' affective and cognitive states.

### **Joint Panel**

#### **Special Track on Intelligent Tutoring Systems, Special Track on Games & Entertainment**

Panelists: *Michael Youngblood, Danielle McNamara, H. Chad Lane, G. Tanner Jackson*

Moderator: *Robert GM Hausmann*

Thursday, May 20, 3:30pm-4:45pm, Dolphin Room (Session 8d)

Most teenagers would probably agree that they would rather play video games than learn from a computer tutor. Those surveyed would probably also begrudgingly agree that they learn more useful content from tutoring systems than games. Thus, a natural, symbiotic relationship exists between games and tutoring systems. The purpose of our panel is to continue a dialog between these two areas of research. During the panel, we hope to address the following questions:

- How can we align ITS pedagogy with Gaming elements?
- Which factors carry more weight (or should carry more weight)?
- What are the important factors to consider?
- Do the factors differ depending on the goal of the system?
- If so, could we establish a loose set of features for different goal types?

## Day 1: Wednesday, May 19

### Wednesday, May 19, 9:00am – 10:00am

**Session 1: General Conference Invited Talk**  
**Richard Petty Room – Chair: David Wilson**

**EM Works for Pronoun-Anaphora Resolution**  
*Eugene Charniak, Brown University, USA*

### Wednesday, May 19, 10:30am – 12:10pm

#### **Session 2: Posters**

#### **River Room**

*After this poster session, posters may be moved to the France Foyer on a space-available basis for continued display during the remainder of the conference.*

#### **General Conference Posters**

Toward Building a Course-Timetabling Decision-Support System

*Anthony Wehrer, Jay Yellen*

A Knowledge Engineering Methodology for Rapid Prototyping of Planning Applications

*Luis Castillo, Juan Fernandez-Olivares, Antonio González, Gonzalo Milla, David Prior, Lluvia Morales, José Figueroa, Victor Pérez-Villar*

Partitioning Features for Model-Based Clustering Using Reversible Jump MCMC Technique

*Younghwan Namkoong, Yongsung Joo, Douglas D. Dankel II*

Rectangle Reasoning - A Qualitative Spatial Reasoning with Superposition

*Shou Kumokawa, Kazuko Takahashi*

The Readability of Helpful Product Reviews

*Michael P. O'Mahony, Barry Smyth*

Primitive Capabilities for Visual Perception

*Sudharsan R. Iyengar*

Ontology-Based Text Mining for Predicting Disease Outbreaks

*Nicolae Dragu, Fouad Elkhoury, Takunari Miyazaki, Ralph A. Morelli, Nicolás di Tada*

Handling of Numeric Ranges for Graph-Based Knowledge Discovery

*Oscar E. Romero A., Jesús A. González, Lawrence B. Holder*

Towards an Ensemble Framework for Assisting in Synthesis Tasks

*Joseph Kendall-Morwick*

Image Re-Ranking Based on Relevance Feedback Combining Internal and External Similarities

*R. Omar Chávez, Manuel Montes, L. Enrique Sucar*

## Day 1: Wednesday, May 19

Wednesday, May 19, 10:30am – 12:10pm

Session 2: Posters – *continued*

River Room

### General Conference Posters – *continued*

On the Episode Duration Distribution in Fixed-Policy Markov Decision Processes

*Itamar Arel, Andrew Davis*

Problem Space Analysis for Plan Library Generation and Algorithm Selection in Real-time Systems

*Robert Holder*

Timed Planning

*Ajay Bansal, Neda Saeedloei, Gopal Gupta*

### Applied Natural Language Processing Posters

Summarization: Constructing an Ideal Summary and Evaluating a Student's Summary Using LSA

*Radhika Malladi, Irwin Levinstein, Chutima Boonthum, Joseph Magliano*

Enhancing Protocol Evaluation Through Semantic Modification of Benchmarks

*Shravan Mylavarapu, Irwin Levinstein, Chutima Boonthum, Joseph Magliano, Keith Millis*

### Data Mining Posters

Mining Actionable Patterns

*Prabakararaj Swapna Raj, Balaraman Ravindran*

Using Constraint Satisfaction for Learning Hypotheses in Inductive Logic Programming

*Roman Barták, Ondrej Kuzelka, Filip Zelezny*

Interactive Knowledge Frontier Discovery with COBWEB-KFD

*Matt Honeycutt, Douglas Talbert, Steve Talbert*

### Games & Entertainment Posters

An Effective and Efficient Real Time Strategy Agent

*Kurt Weissgerber, Brett J. Borghetti, Gilbert L. Peterson*

A Destination Recommendation System for Virtual Worlds

*Fahad Shah, Philip Bell, Gita Sukthankar*

Reactive Teaming for Intelligent Game Characters

*Frederick W. P. Heckel, G. Michael Youngblood, Nikhil S. Ketkar*

A Largest Common Subsequence-based Distance Measure for Classifying Player Motion Traces in Virtual Worlds

*Nikhil S. Ketkar, G. Michael Youngblood*

## Day 1: Wednesday, May 19

Wednesday, May 19, 10:30am – 12:10pm

Session 2: Posters – *continued*

River Room

### Intelligent Tutoring Systems Posters

Considering Ill-Definedness Of Problems from the Aspect Of Solution Space  
*Nguyen-Think Le, Wolfgang Menzel, Niels Pinkwart*

An Adaptive Training Prototype for Small Unmanned Aerial System Employment  
*Paula J. Durlach, Brandt W. Dargue*

Enhancing Learner Self-Esteem for Learning Improvements  
*Imène Jraidi, Maher Chaouachi, Claude Frasson*

Search and Exploration in LinkedCourse  
*Darina Dicheva, Christo Dichev, Rob Drayton*

### Uncertain Reasoning Posters

A Surprise-Based Qualitative Probability Calculus II  
*Zina M. Ibrahim, Ahmed Y. Tawfik, Alioune Ngom*

Towards a More Expressive Model for Dynamic Classification  
*Shengtong Zhong, Ana M. Martinez, Thomas Dyhre Nielsen, Helge Langseth*

## Day 1: Wednesday, May 19

### Wednesday, May 19, 1:45pm – 3:00pm

#### **Session 3a: Intelligent Tutoring Systems**

**Richard Petty Room – Chair: Robert GM Hausmann**

- 1:45pm Game Based Training for Fighter Pilots  
*Jeremy Ludwig, Robert Richards, Jeff Lovelace*
- 2:10pm Expert Tutors' Feedback is Immediate, Direct, and Discriminating  
*Sidney D'Mello, Blair Lehman, Natalie Person*
- 2:35pm Character Education Using Pedagogical Agents and Socratic Voice  
*Rania Hodhod, Daniel Kudenko, Paul Cairns*

#### **Session 3b: Uncertain Reasoning – Invited Talk**

**France A Room – Chair: Luis Enrique Sucar**

- 1:45pm **What Should the World-Wide Mind Believe? Knowledge and Uncertainty at a Global Scale**  
*David Poole, University of British Columbia, Canada*

#### **Session 3c: AI, Cognitive Semantics, & Computational Linguistics: New Perspectives**

**France B/C Room – Chair: Anca Pascu**

- 1:45pm Annotating Lexically Entailed Subevents for Textual Inference Tasks  
*Seohyun Im, James Pustejovsky*
- 2:10pm French-written Event Extraction Based on Contextual Exploration  
*Aymen Elkhelifi, Rim Faiz*
- 2:35pm Direct Reported Speech in Multilingual Texts: Automatic Annotation and Semantic Categorization  
*Motasem Alrahabi, Jean-Pierre Desclés, Jungyeon Suh*

#### **Session 3d: General Track – Biomedical Analysis**

**Dolphin Room – Chair: Geoff Sutcliffe**

- 1:45pm A Supervised Method for Microcalcifications Detection Using Breast Density  
*Gabriela A. Rodriguez, Jesús A. González, Leopoldo Altamirano, Jose S. Guichard, Raquel Diaz*
- 2:10pm Segmentation of Bone Marrow Cell Images for Morphologic Classification of Acute Leukemia  
*Carolina Reta, Leopoldo Altamirano, Jesús A. González, Raquel Diaz, Jose S. Guichard*
- 2:35pm Structured Motifs Identification in DNA Sequences  
*Yuridia P. Mejía, Ivan Olmos, Jesús A. González*

### Wednesday, May 19, 3:30pm – 5:10pm

#### **Session 4a: Joint Session – Intelligent Tutoring Systems and Games & Entertainment**

**Richard Petty Room – Chair: G. Tanner Jackson**

- 3:30pm A Model for Content Sequencing in Intelligent Tutoring Systems Based on the Ecological Approach and Its Validation through Simulated Students  
*John Champaign, Robin Cohen*
- 3:55pm Problem Solving by English Learners and English Primary Students in an Algebra-Readiness ITS  
*Federico Cirett, Carole R. Beal*
- 4:20pm **Games & Entertainment – Invited Talk**  
**How AI is Applied to Commercial Games**  
*Dany Guevara, Electronic Arts, USA*

## Day 1: Wednesday, May 19

### Wednesday, May 19, 3:30pm – 5:10pm

#### Session 4b: Uncertain Reasoning

France A Room – Chair: Laurent Perrussel

- 3:30pm Generalized Non-impeding Noisy-AND Trees  
*Yang Xiang*
- 3:55pm Conditional Gaussian Probabilistic Decision Graphs  
*Jens Dalgaard Nielsen, Antonio Salmerón*
- 4:20pm Local Importance Sampling in Multiply Sectioned Bayesian Networks  
*Karen H. Jin, Dan Wu*
- 4:45pm Efficient Indexing for Recursive Conditioning Algorithms  
*Kevin Grant*

#### Session 4c: AI, Cognitive Semantics, & Computational Linguistics – Invited Talk

France B/C Room – Chair: Ismail Biskri

- 3:30pm Reasoning in Natural Language in using Combinatory Logic and Topology  
*Jean-Pierre Desclés, Université de Paris-Sorbonne, France*

#### Session 4d: General Track – Classification and Labeling

Dolphin Room – Chair: Chas Murray

- 3:30pm Meta-Prediction for Collective Classification  
*Luke K. McDowell, Kalyan Moy Gupta, David W. Aha*
- 3:55pm Off to a Good Start: Using Clustering to Select the Initial Training Set in Active Learning  
*Rong Hu, Brian Mac Namee, Sarah Jane Delany*
- 4:20pm Subgraph Isomorphism Detection with Support for Continuous Labels  
*Gerardo Perez, Ivan Olmos, Jesús A. González*
- 4:45pm Handling Concept Drift in a Text Data Stream Constrained by High Labelling Cost  
*Patrick Lindstrom, Sarah Jane Delany, Brian Mac Namee*

### Wednesday, May 19, 6:00pm

#### Reception

Best Paper, Best Student Paper, & Best Poster Awards

Ocean Terrace



## Day 2: Thursday, May 20

### Thursday, May 20, 9:00am – 10:00am

**Session 5: General Conference Invited Talk**  
**Richard Petty Room – Chair: Chas Murray**

**Rational Ways of Talking**  
*Herbert H. Clark, Stanford University, USA*

### Thursday, May 20, 10:30am – 12:10pm

#### **Session 6a: General Track – Spatio-Temporal Reasoning**

**Richard Petty Room – Chair: Hans Guesgen**

- 10:30am Commonsense Inference in Dynamic Spatial Systems: Epistemological Requirements  
*Mehul Bhatt*
- 10:55am **Invited Talk: A Qualitative Spatio-Temporal Approach to Activity Recognition and Object Classification**  
*Anthony Cohn, University of Leeds, United Kingdom*

#### **Session 6b: Data Mining**

**France A Room – Chair: Bill Eberle**

- 10:30am Large Data Sets, Conditional Entropy and the Cooper-Herskovitz Bayesian Score  
*Saaïd Baraty, Dan A. Simovici*
- 10:55am On the Number of Clusters in Block Clustering Algorithms  
*Malika Charrad, Yves Lechevallier, Mohamed Ben Ahmed, Gilbert Saporta*
- 11:20am An Evaluation of Sampling on Filter-Based Feature Selection Methods  
*Kehan Gao, Taghi Khoshgoftaar, Jason Van Hulse*
- 11:45am CMRULES: An Efficient Algorithm for Mining Sequential Rules Common to Several Sequences  
*Philippe Fournier-Viger, Usef Faghihi, Roger Nkambou, Engelbert Mephu Nguifo*

#### **Session 6c: AI, Cognitive Semantics, & Computational Linguistics: New Perspectives**

**France B/C Room – Chair: Susan Haller**

- 10:30am Disambiguation of Textual Data Typification for the Purpose of Categorical Analysis  
*Adam Joly, Ismail Biskri, Boubakar Hamrouni*
- 10:55am Coordination of Standard Arabic Subject Markers: Implementing the Agreement Asymmetries in the ACCG Framework  
*Ismaïl Biskri, Louissette Emirkanian, Adel Jebali*
- 11:20am Explanation Versus Meta-Explanation: What Makes a Case More Convincing?  
*Boris Galitsky, Josep Lluís de la Rosa, Boris Kovalerchuk*

## Day 2: Thursday, May 20

### **Thursday, May 20, 10:30am – 12:10pm**

#### **Session 6d: Games & Entertainment**

**Dolphin Room – Chair: G. Michael Youngblood**

- 10:30am Applying Goal Driven Autonomy to a Team Shooter Game  
*Hector Munoz-Avila, David Aha, Ulit Jaidee, Matthew Klenk, Matthew Molineaux*
- 10:55am Using Intelligent Agents to Build Navigation Meshes  
*David Hale, G. Michael Youngblood, Nikhil Ketkar*
- 11:20am Improving Structural Knowledge Transfer with Parametric Adaptation  
*Tolga Konik, Kamal Ali, Daniel Shapiro, Nan Li, David Stracuzzi*
- 11:45am Designer-Driven Intention Recognition in an Action-Adventure Game Using Fast Forward Bayesian Models  
*Kevin Gold*

### **Thursday, May 20, 1:45pm – 3:00pm**

#### **Session 7a: General Track – Visual Machine Learning**

**Richard Petty Room – Chair: Kevin Gold**

- 1:45pm Imitating Personalized Expressions in an Avatar through Machine Learning  
*Cassandra Puklavage, Alexander Pirela, Avelino J. Gonzalez, Michael Georgiopoulos*
- 2:10pm Learning to Identify and Track Imaginary Objects Implied by Gestures  
*Andriya Piplica, Alexandra Olivier, Allison Petrosino, Kevin Gold*
- 2:35pm Visual Object Detection Using Frequent Pattern Mining  
*Yousuf Sait, Balaraman Ravindran*

#### **Session 7b: Intelligent Tutoring Systems – Invited Talk**

**France A Room – Chair: Phil McCarthy**

- 1:45pm **Emotion Detection and Emotionally-Sensitive Computer Tutoring**  
*Sidney D'Mello, University of Memphis, USA*

#### **Session 7c: AI, Cognitive Semantics, & Computational Linguistics: New Perspectives**

**France B/C Room – Chair: Florence Le Priol**

- 1:45pm Inverting Semantic Structure under Open Domain Opinion Mining  
*Boris Galitsky, Josep Lluís de la Rosa, Gábor Dobrocsi*
- 2:10pm Combining MT Systems Effectively  
*Petr Homola, Jernej Včić*

#### **Session 7d: Intelligent Tutoring Systems**

**Dolphin Room – Chair: G. Tanner Jackson**

- 1:45pm MiBoard: A Digital Game from a Physical World  
*Kyle B. Dempsey, G. Tanner Jackson, Justin F. Brunelle, Michael Rowe, Danielle S. McNamara*
- 2:10pm Computational Aspects of the Intelligent Tutoring System MetaTutor  
*Vasile Rus, Mihai Lintean, Roger Azevedo*
- 2:35pm Gamed-Based iSTART Practice: From MiBoard to Self-Explanation Showdown  
*Justin F. Brunelle, G. Tanner Jackson, Kyle Dempsey, Chutima Boonthum, Irwin B. Levinstein, Danielle S. McNamara*

## Day 2: Thursday, May 20

### Thursday, May 20, 3:30pm – 4:45pm

#### **Session 8a: General Track – Probabilistic Methods**

**Richard Petty Room – Chair: Luis Enrique Sucar**

- 3:30pm Decision-Theoretic Simulated Annealing  
*Todd Neller, Christopher La Pilla*
- 3:55pm Structured Value Elimination with D-Separation Analysis  
*Lionel Torti, Pierre-Henri Wuillemin*
- 4:20pm A System for Relational Probabilistic Reasoning on Maximum Entropy  
*Matthias Thimm, Marc Finthammer, Sebastian Loh, Gabriele Kern-Isberner, Christoph Beierle*

#### **Session 8b: Data Mining**

**France A Room – Chair: David Bisant**

- 3:30pm Using a Graph-Based Approach for Discovering Cybercrime  
*William Eberle, Lawrence Holder, Jeffrey Graves*
- 3:55pm Incrementally Learning Rules for Anomaly Detection  
*Denis Petrussenko, Philip K. Chan*
- 4:20pm Fast Discovery of Relevant Subgroup Patterns  
*Florian Lemmerich, Mathias Rohlfs, Martin Atzmueller*

#### **Session 8c: Applied Natural Language Processing**

**France B/C Room – Chair: Phil McCarthy**

- 3:30pm Morphological Analysis of Ill-formed Arabic Verbs in Intelligent Language Tutoring Framework  
*Khaled Shaalan, Marwa Magdy, Aly Fahmy*
- 3:55pm Toponym Disambiguation using Events  
*Kirk Roberts, Cosmin Adrian Bejan, Sanda Harabagiu*
- 4:20pm Dynamic effects of task type practice on the Japanese EFL university student's writing: Text analysis with Coh-Metrix  
*Kyoko Baba, Ryo Nitta*

#### **Session 8d: Intelligent Tutoring Systems, Games & Entertainment**

**Dolphin Room**

3:30pm **Joint Panel**

Panelists: *Michael Youngblood, Danielle McNamara, H. Chad Lane, G. Tanner Jackson*  
Moderator: *Robert GM Hausmann*

## Day 2: Thursday, May 20

### **Thursday, May 20, 5:00pm – 6:15pm**

#### **Session 9a: General Track – Modeling the Mind**

**Richard Petty Room – Chair: Herbert H. Clark**

- 5:00pm An Empirical Examination of the Relation between Attention and Motivation in Computer-Based Education: A Modeling Approach  
*Genaro Rebolledo-Mendez, Sara de Freitas, Jose Rafael Rojano-Caceres, Alma Rosa Garcia-Gaona*
- 5:25pm A Psychologically-Inspired Agent for Iterative Prisoner's Dilemma  
*Rawad Al-Haddad, Gita Sukthankar*

#### **Session 9b: Data Mining**

**France A Room – Chair: Bill Eberle**

- 5:00pm Correlating Shape and Functional Properties Using Decomposition Approaches  
*Daniel Dornbusch, Robert Haschke, Stefan Menzel, Heiko Wersing*
- 5:25pm An Experimental Evaluation of Popular Image Parameters for Monochromatic Solar Image Categorization  
*Juan M. Banda, Rafal A. Angryk*
- 5:50pm Optimized Mining of a Concise Representation for Frequent Patterns Based on Disjunctions Rather than Conjunctions  
*Tarek Hamrouni, Sadok Ben Yahia, Engelbert Mephu Nguifo*

#### **Session 9c: Applied Natural Language Processing**

**France B/C Room – Chair: Chutima Boonthum**

- 5:00pm Automatic Classification of Article Errors in L2 Written English  
*Aliva Pradhan, Aparna Varde, Jing Peng, Eileen Fitzpatrick*
- 5:25pm Identifying Varietals in the Discourse of American and Korean Scientists: A Contrastive Corpus Analysis Using the Gramulator  
*Hyunsoon C. Min, Philip M. McCarthy*
- 5:50pm Learning Collaborative Tasks on Textual User Interfaces  
*Nate Blaylock, Hyuckchul Jung, James Allen, William de Beaumont, George Ferguson, Lucian Galescu, Mary Swift*

#### **Session 9d: Case-Based Reasoning**

**Dolphin Room – Chair: Steven A. Bogaerts**

- 5:00pm Assumption-Based Reasoning for Multiagent Case-Based Recommender Systems  
*Fabiana Lorenzi, Francesco Ricci, Mara Abel, Ana L. C. Bazzan*
- 5:25pm Using Ontologies in Case-Based Activity Recognition  
*Stephen Knox, Lorcan Coyle, Simon Dobson*
- 5:50pm Similarity Measures in Hierarchical Behaviours from a Structural Point of View  
*Gonzalo Flórez-Puga, Belen Diaz-Agudo, Pedro Gonzalez-Calero*

## Day 3: Friday, May 21

### Friday, May 21, 9:00am – 10:00am

**Session 10: General Conference Invited Talk**  
**Richard Petty Room – Chair: Hans Guesgen**

**How Can We Help People Develop their Creativity?**  
*Janet L. Kolodner, Georgia Institute of Technology, USA*

### Friday, May 21, 10:30am – 12:10pm

**Session 11a: General Track – Machine Learning and Simulation**  
**Richard Petty Room – Chair: Eugene Charniak**

- 10:30am Heuristic Sequencing Crossover: Integrating Problem Dependent Heuristic Knowledge into a Genetic Algorithm  
*Vincent A. Cicirello*
- 10:55am Evaluating Multi-Agent Traffic Controllers  
*Crystal Redman, Adele Howe*
- 11:20am CsMTL MLP for WEKA: Neural Network Learning with Inductive Transfer  
*Liangliang Tu, Benjamin Fowler, Daniel L. Silver*
- 11:45am A Reinforcement Learning Model for Economic Agent Specialization  
*Denton Cockburn, Ziad Kobti, Timothy A. Kohler*

**Session 11b: Artificial Intelligence Education**  
**France A Room – Chair: Todd Neller**

- 10:30am Recognizing American Sign Language Letters: A Machine Learning Experience in an Introductory AI Course  
*Ellen L. Walker*
- 10:55am Python as a Vehicle for Teaching Natural Language Processing  
*Reva Freedman*
- 11:20am A Game Playing System for Use in Computer Science Education  
*James MacGlashan, Don Miner, Marie desJardins*

**Session 11c: Applied Natural Language Processing**  
**France B/C Room – Chair: Phil McCarthy**

- 10:30am Learning Textual Graph Patterns to Detect Causal Event Relations  
*Bryan Rink, Cosmin Bejan, Sanda Harabagiu*
- 10:55am Semantic Methods for Textual Entailment: Old and New  
*Andrew Neel, Max Garzon*
- 11:20am A Quantitative Assessment of SENSATIONAL with an Exploration of Its Applications  
*Wei Xiong, Min Song, Lori Watrous-deVersterre*
- 11:45am Interlanguage Talk: What Can Breadth of Knowledge Features Tell Us about Input and Output Differences?  
*Scott Crossley, Danielle McNamara*

## Day 3: Friday, May 21

### **Friday, May 21, 10:30am – 12:10pm**

#### **Session 11d: Cognition and AI**

**Dolphin Room – Chair: Nick Duran**

- 10:30am Testing the Attention Capacities of a Complex Auto-Adaptive System: A Stroop Task Simulation  
*Othalia Larue, Mickaël Camus, Pierre Poirier*
- 10:55am Performing Complex Associations Using a Feature-Extracting Bidirectional Associative Memory  
*Craig Leth-Steensen, Sylvain Chartier, Dominic Langlois, Marie-France Hébert*
- 11:20am Grounded Event-Based and Modal Representations for Objects, Relations, Beliefs, etc.  
*Ryan McCall, Stan Franklin, David Friedlander*

### **Friday, May 21, 1:45pm – 3:00pm**

#### **Session 12a: General Track – Common Sense and World Knowledge**

**Richard Petty Room – Chair: Niels Pinkwart**

- 1:45pm Progress Towards Effective Automated Reasoning with World Knowledge  
*Geoff Sutcliffe, Martin Suda, Alexandra Teyssandier, Nelson Dellis, Gerard de Melo*
- 2:10pm Using Verbosity: Common Sense Data from Games with a Purpose  
*Robert Speer, Catherine Havasi, Harshit Surana*

#### **Session 12b: Artificial Intelligence Education**

**France A Room – Chair: Jim Marshall**

- 1:45pm Using Robots in Undergraduate AI Courses at Small Universities  
*Kenneth Moorman, Dee Parks*
- 2:10pm Effects of Game Tournaments on Learning and Classroom Climate  
*Michael Wollowski, John Paul Verkamp*
- 2:35pm **Panel Discussion: The Future of AI Education**

#### **Session 12c: Applied Natural Language Processing**

**France B/C Room – Chair: Chutima Boonthum**

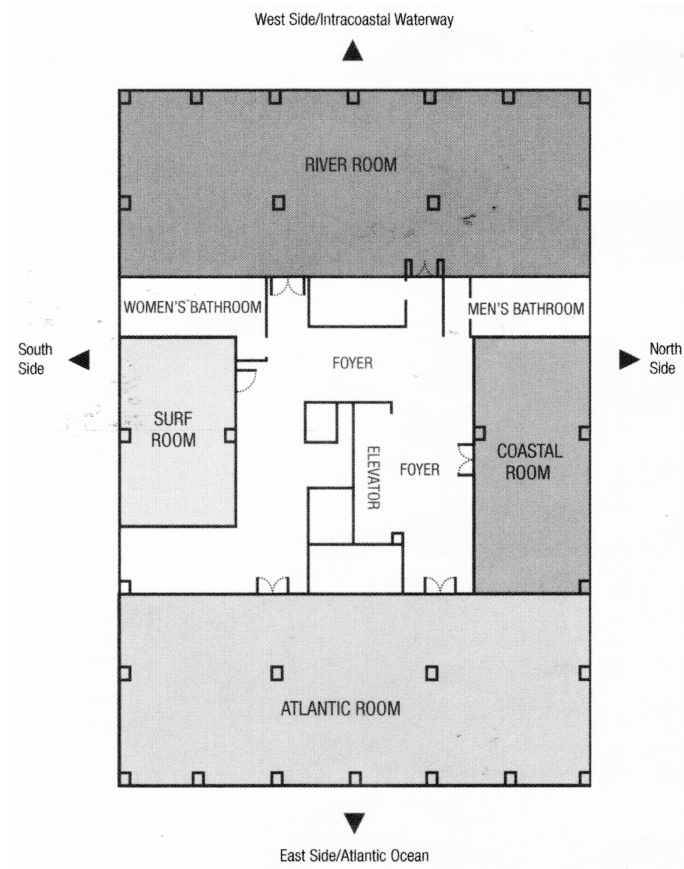
- 1:45pm The Role of Local and Global Weighting in Assessing The Semantic Similarity Of Texts using Latent Semantic Analysis  
*Mihai Lintean, Cristian Moldovan, Vasile Rus, Danielle McNamara*
- 2:10pm Towards a Computational Assessment of Freewriting Quality  
*Jennifer L. Weston, Scott A. Crossley, Danielle S. McNamara*
- 2:35pm GPAT: A Genre Purity Assessment Tool  
*Philip M. McCarthy*

#### **Session 12d: Cognition and AI**

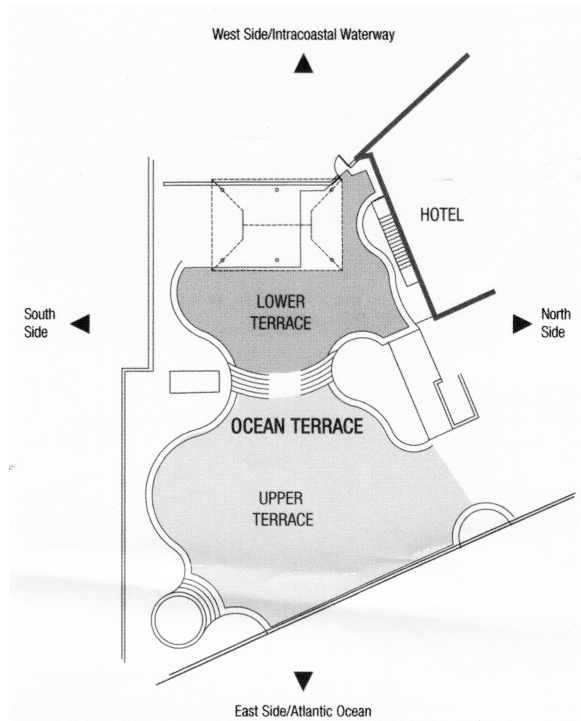
**Dolphin Room – Chair: Sidney D'Mello**

- 1:45pm Affect and Mental Engagement: Towards Adaptability for Intelligent Systems  
*Maher Chaouachi, Pierre Chalfoun, Imène Jraïdi, Claude Frasson*
- 2:10pm A Method of Analysis to Uncover Artefact-Communication Relationships  
*Nik Nailah Binti Abdullah, Helen C. Sharp, Shinichi Honiden*

# Cloud Level



# Terrace



# Conference at a Glance

Preconference					
Tue, May 18	Off Lobby	Daytona Beach Golf Club		River Room	
12:00pm	Registration Wifi				
1:00pm		FLAIRS-23 Golf			
3:00-6:00pm					
6:00-9:00pm		Poster preparation & setup - River Room			
Day 1					
Wed, May 19	Off Lobby	Richard Petty	France A	France B/C	
8:00am	Registration Wifi	Coffee – France Foyer			Poster Preparation & setup - River Room
9:00am		Session 1, Richard Petty Room – Invited Talk EM Works for Pronoun-Anaphora Resolution – <i>Eugene Charniak</i>			
10:00am		Break – River Room			
10:30am to 12:10pm		Session 2, <u>River Room</u> : Posters			
12:15pm		Lunch – Atlantic Room			
1:45pm to 3:00pm		Session 3a: (3) Intelligent Tutoring Systems	Session 3b: Uncertain Reasoning Invited Talk – <i>David Poole</i>	Session 3c: (3) AI, Cognitive Semantics, & Computational Linguistics	Session 3d: (3) General Track – Biomedical Analysis
3:00pm		Break – France Foyer			
3:30pm to 5:10pm		Session 4a: 2 Intelligent Tutoring Systems papers; Games & Entertainment Invited Talk - <i>Dany Guevara</i>	Session 4b: (4) Uncertain Reasoning	Session 4c: AI, Cognitive Semantics, & Comp. Linguistics Invited Talk – <i>Jean-Pierre Desclés</i>	Session 4d: (4) General Track – Classification & Labeling
5:10pm		WiFi			
6:00pm		Reception – Ocean Terrace: Best Paper, Best Student Paper, and Best Poster Awards			
Day 2					
Thu, May 20	Off Lobby	Richard Petty	France A	France B/C	
8:00am	Registration Wifi	Coffee – France Foyer			Dolphin A/B
9:00am		Session 5, Richard Petty Room – Invited Talk Rational Ways of Talking – <i>Herbert H. Clark</i>			
10:00am		Break – France Foyer			
10:30am to 12:10pm		Session 6a: Spatio-Temporal Reasoning – 1 Paper; Invited Talk: <i>Anthony Cohn</i>	Session 6b: (4) Data Mining	Session 6c: (3) AI, Cognitive Semantics, & Computational Linguistics	Session 6d: (4) Games & Entertainment
12:15pm		Lunch – Atlantic Room			
1:45pm to 3:00pm		Session 7a: (3) General Track – Visual Machine Learning	Session 7b: Intelligent Tutoring Systems Invited Talk – <i>Sidney D'Mello</i>	Session 7c: (2) AI, Cognitive Semantics, & Computational Linguistics	Session 7d: (3) Intelligent Tutoring Systems
3:00pm		Break – France Foyer			
3:30pm to 4:45pm		Session 8a: (3) General Track – Probabilistic Methods	Session 8b: (3) Data Mining	Session 8c: (3) Applied Natural Language Processing	Session 8d: <b>Joint Panel</b> Intelligent Tutoring Systems, Games & Entertainment
4:45pm					
5:00pm to 6:15pm		WiFi	Session 9a: (2) General Track – Modeling the Mind	Session 9b: (3) Data Mining	Session 9c: (3) Applied Natural Language Processing
Session 9d: (3) Case-Based Reasoning					
Day 3					
Fri, May 21	Off Lobby	Richard Petty	France A	France B/C	
8:00am	Registration Wifi	Coffee – France Foyer			Dolphin
9:00am		Session 10, Richard Petty Room – Invited Talk How Can We Help People Develop their Creativity? – <i>Janet L. Kolodner</i>			
10:00am		Break – France Foyer			
10:30am to 12:10pm		Session 11a: (4) General Track – Machine Learning and Simulation	Session 11b: (3) Artificial Intelligence Education	Session 11c: (4) Applied Natural Language Processing	Session 11d: (3) Cognition and AI
12:15pm		Lunch – Atlantic Room			
1:45pm to 3:00pm		Session 12a: (2) General Track – Common Sense & World Knowledge	Session 12b: (3) Artificial Intelligence Education	Session 12c: (3) Applied Natural Language Processing	Session 12d: (2) Cognition and AI
3:00pm		Break – France Foyer			
3:30pm to 4:30 pm		FLAIRS Business Meeting – Surf Room			
4:30 pm		END OF CONFERENCE			
Day 4					
Sat, May 22	Daytona Beach Golf Club				
8:00 AM	FLAIRS-23 Golf				