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Technological Educational Institute of Crete, Greece

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University of Athens, Greece

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University of Electro-Communications, Japan

**Young Researcher Track Chairs**  
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McGill University, Canada  
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University of Southern California, USA

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# Scientific Sponsors

The following scientific associations have granted their scientific support to the conference; their members benefit from a special registration rate.

The conference benefits also from the sponsoring of the following renowned conferences:
- IJCAI : International Joint Conference in Artificial Intelligence
- ECAI : European Conference in Artificial Intelligence
- EDM : Educational Data Mining
## ITS 2012 Program - Day 1 - Thursday June 14th 2012 - Workshops and Tutorials

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<td>W4: Emotion in Games for learning</td>
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<td>W1: Intelligent Support for Exploratory Environments: Exploring, Collaborating, and Learning Together</td>
<td>T1: Important relationships in data: magnitude and causality as flags for what to focus on.</td>
<td>W4: Emotion in Games for learning</td>
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<td>Toby Dragon, Sergio Gutierrez Santos, Manolis Mavrikis, and Bruce M. McLaren</td>
<td>Joseph Beck (WPI)</td>
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| 09:00 | W2: Workshop on Self-Regulated Learning in Educational Technologies (SRL@ET): Supporting, Modelling, evaluating, and fostering metacognition with computer-based learning environments  
  Amali Weerasinghe, Roger Azevedo, Ido Roll, and Ben Du Boulay  
  Jihie Kim and Rohit Kumar  
  [https://sites.google.com/site/islg2012/](https://sites.google.com/site/islg2012/) | T2: Parameter fitting for learner models  
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<td>Invited Speaker: Colin Alison <em>(University of St Andrews).</em> Open Virtual Worlds for Exploratory Learning</td>
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### Session 1.1: Affect – Emotions
- **Session 1.1: Affect – Emotions**
- **Room 2**
  - 08:30 #115. Jraid, Chalfoun, Frasson. Implicit Strategies for Intelligent Tutoring Systems
  - 08:30 #77. Hayashi. On pedagogical effects of learner-support agents in collaborative interaction

### Session 2.1: Content representation: conceptual
- **Session 2.1: Content representation: conceptual**
- **Room 2**
  - 08:30 #194. Možina, Guid, Sadikov, Groznik, Bratko. Goal-Oriented Conceptualization of Procedural Knowledge
  - 08:30 #86. Elias, Miquilino, Bittencourt, Tendrio, Ferreira, Pedro, Isotani, Jaques. Towards an Ontology-Based System to Improve Usability in Collaborative Learning Environments
  - 08:30 #99. Jin, Barnes, Stamper, Lehmann. Program Representation for Automatic Hint Generation for a Data-Driven Novice Programming Tutor

### Session 3.1: Dialogue: empirical studies
- **Session 3.1: Dialogue: empirical studies**
- **Room 2**
  - 08:30 #135. Dyke, Howley, Adamson, Rosé. Towards Academically Productive Talk Supported by Conversational Agents
  - 08:30 #19. Lehman, Mills, D'Mello, Graesser. Automatic Evaluation of Learner Self-Explanations and Types of Erroneous Responses for Dialogue-Based ITSs
  - 08:30 #106. Howley, Adamson, Dyke, Mayfield, Beuth, Penstein Rosé. Group Composition and Intelligent Dialogue Tutors for Impacting Students’ Academic Self-Efficacy

### Session 1.2: Affect – Emotions
- **Session 1.2: Affect – Emotions**
- **Room 2**
  - 09:00 #23. Zhang. Exploration of Affect Detection using Semantic Cues in Virtual Improvisation
  - 09:00 #57. Harley, Bouchet, Azevedo. Measuring Learners’ Co-Occurring Emotional Responses during Their Interaction with a Pedagogical Agent In MetaTutor
  - 09:00 #133. Shanabrook, Arroyo, Burleson, Woolf. Visualization of Student Activity Patterns within Intelligent Tutoring Systems

### Session 2.2: Assessment: constraints
- **Session 2.2: Assessment: constraints**
- **Room 2**
  - 09:30 #70. Galvez Cordero, Guzman De Los Riscos, Conejo Muñoz. Exploring Quality of Constraints for Assessment in Problem Solving Environments
  - 09:30 #166. Le, Pinkwart. Can Soft Computing Techniques Enhance the Error Diagnosis Accuracy for Intelligent Tutors?

### Session 3.2: Dialogue: empirical studies
- **Session 3.2: Dialogue: empirical studies**
- **Room 2**
  - 09:30 #134 Lehman, D'Mello, Cade, Person. How Do They Do It? Investigating the Relationship between Tutor and Student Dialogue Moves and Tutorial Dialogue Modes
  - 09:30 #132. Carlson, Keiser, Matsuda, Rose, Koedinger. Building a Conversational SimStudent
  - 09:30 #196. Yoo, Kim. Predicting Learner’s Project Performance with Dialogue Features in Online Q&A Discussions

### Session 1.3: Affect – Emotions
- **Session 1.3: Affect – Emotions**
- **Room 2**
  - 10:30 #121. Grafsgaard, Boyer, Lester. Toward a Machine Learning Framework for Understanding Affective Tutorial Interaction
  - 10:30 #153. Chauncey, Azevedo, D'Mello. Exploring relationships between learners’ affective states, metacognitive processes, and learning outcomes
  - 10:30 #116. Chaouachi, Frasson. Mental Workload, Engagement and Emotions: an Exploratory Study for Intelligent Tutoring Systems

### Session 2.3: Dialogue: conceptual
- **Session 2.3: Dialogue: conceptual**
- **Room 2**
  - 10:30 #147. Chiru, Trausan-Matu. Identification and Classification of the Most Important Moments from that Discourse
  - 10:30 #35. Floryan, Dragon, Woolf. When Less is More: Focused Pruning of Knowledge Bases to Improve Recognition of Student Conversation
  - 10:30 #37. Adamson, Rosé. Coordinating Multi-dimensional Support in Collaborative Conversational Agents

### Session 3.3: Dialogue: Questions
- **Session 3.3: Dialogue: Questions**
- **Room 2**
  - 10:30 #12. Liu, Calvo. Using Information Extraction to Generate Trigger Questions for Academic Writing Support
  - 10:30 #24. Becker, Palmer, van Vuuren, Ward. Learning to Tutor Like a Tutor: Ranking Questions in Context

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<tr>
<td>17:00</td>
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<td>19:00</td>
<td><strong>Special Session:</strong>&lt;br&gt;Carina Wong (Deputy Director for Education for the Bill &amp; Melinda Gates Foundation). Technology, teachers and tensions&lt;br&gt;Jim Spohrer (Innovation Champion and Director, IBM University Programs World-Wide). Individuals and Institutions Learning Together: A Service Science Perspective, videoconference</td>
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## ITS 2012 Program • Day 4 (1/2) • Sunday June 17th 2012 • Main Conference

### ROOM 1

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<td>Invited Speaker: Maria Grigoriadou (University of Athens)</td>
<td>From Learning Theories to Learning Environments</td>
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### Session 1.4 : Games – Empirical studies

- **30m #117. Sabourin, Shores, Mott, Lester.** Predicting Student Self-Regulation Strategies in Game-Based Learning Environments
- **30m #150. Wang, Pynadath, Marsella.** Toward Automatic Verification of Multiagent Systems for Training Simulations
- **20m #187. Morgan, Keshtkar, Duan, Nash, Graesser.** Using State Transition Networks to Analyze Multi-Party Conversations in a Serious Game
- **20m #107. Thomas, Labat, Muratet, Yessad.** How to Evaluate Competencies in Game Based Learning Systems Automatically?

### Session 2.4 : Learner modeling

- **30m #13. Jarušek and Pelánek.** Analysis of a Simple Model of Problem Solving Times
- **30m #82. Käser, Busetto, Baschera, Kohn, Kucian, von Aster, Gross.** Modelling and Optimizing the Process of Learning Mathematics
- **20m #103. Wang, Heffernan.** The Student Skill Model
- **20m #207. Pardos, Trivedi, Heffernan, Sárközy.** Clustered Knowledge Tracing

### Session 3.4 : Young Researcher Track

- **30m #158. Lehman, D'Mello and Graesser.** Interventions to Regulate Confusion during Learning
- **30m #60. Shareghi Najar, Mitrovic.** Using Examples in Intelligent Tutoring Systems
- **30m #165. Brawner, Sottilare, Gonzalez.** Semi-Supervised Classification of Realtime Physiological Sensor Datastreams for Student Affect Assessment in Intelligent Tutoring

### Session 1.5 : Affect – Signals

- **20m #41. Brawner, Goldberg.** Realtime Monitoring of ECG and GSR Signals during Computer-Based Training
- **20m #64. Hussain, Monkaresi, Calvo.** Categorical vs. Dimensional Representations in Multimodal Affect Detection during Learning
- **20m #126. Chalfoun, Frasson.** Cognitive priming: assessing the use of non-conscious perception to enhance learner’s reasoning ability

### Session 2.5 : Learner modeling

- **20m #179. Bull.** Preferred Features of Open Learner Models for University Students.
- **20m #48. Mathews, Mitrovic, Lin, Holland, Churcher.** Do your eyes give it away? Using eye tracking data to understand students’ attitudes towards open student model representations
- **20m #30. Goel, Lalle, Luengo.** Fuzzy Logic Representation for Student Modelling Case Study on Geometry

### Session 3.5 : Young Researcher Track

- **30m #167. Peckham.** Detection of Cognitive Strategies in Reading Comprehension Tasks
- **30m #173. Lomas, Stamper, Muller, Patel, Koedinger.** The Effects of Adaptive Sequencing Algorithms on Player Engagement within an Online Game

### Lunch

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### Session 1.6 : Content representation – Empirical studies

- **30m #103. Rau, Alevien, Rummel, Rohrbach.** Sense Making Alone Doesn’t Do It: Fluency Matters Too! ITS Support for Robust Learning with Multiple Representations
- **30m #94. Li, Cohen, Koedinger.** Problem Order Implications for Learning Transfer
- **20m #112. Karlouvec, Cordova-Sanchez, Pardos.** Knowledge Component Suggestion for Untagged Content in an Intelligent Tutoring System

### Session 2.6 : Learner modeling

- **30m #51. Gowda, Pardos, S.J.D. Baker.** Content learning analysis using the moment-by-moment learning detector
- **30m #33. S.J.D. Baker, Gowda, Corbett, Ocumphaugh.** Towards Automatically Detecting Whether Student Learning is Shallow
- **30m #162. Desmarais, Naceur, Beheshti.** Item to skills mapping: Deriving a conjunctive Q-matrix from data

### Session 3.6 : Young Researcher Track

- **30m #191. Rivers, Koedinger.** A Canonicalizing Model for Building Programming Tutors
- **30m #199. Wiederrecht, Ulinski.** Develop mentally Appropriate Intelligent Spatial Tutoring for Mobile Devices
- **30m #200. Johnson, Okimoto, Barnes.** Leveraging Game Design to Promote Effective User Behavior of Intelligent Tutoring Systems

### Tea Break

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<td>16:00</td>
<td><strong>Session 1.7 : Games – Motivation and design</strong>&lt;br&gt;20m #17. Muratet, Delozanne, Viallet, Torguet. Serious game and students’ learning motivation: effect of context using Prog&amp;Play&lt;br&gt;20m #105. Derbali and Frasson. Exploring the Effects of Prior Video-Game Experience on Learner’s Motivation during Interactions with HeapMotiv&lt;br&gt;20m #7. Marne, Wisdom, Huynh-Kim-Bang, Labat. A Design Pattern Library for Mutual Understanding and Cooperation in Serious Game Design</td>
<td><strong>Session 2.7 : Learner modeling</strong>&lt;br&gt;20m #96. Shores, Hoffmann, Nietfeld, Lester. The Role of Sub-Problems: Supporting Problem Solving in Narrative-Centered Learning Environments&lt;br&gt;20m #118. Sabourin, Rowe, Mott, Lester. Exploring Inquiry-based Problem-Solving Strategies in Game-based Learning Environments&lt;br&gt;20m #130. Lee, Mott, Lester. Real-Time Narrative-Centered Tutorial Planning for Story-Based Learning</td>
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<tr>
<td>17:00</td>
<td>Invited Speaker: Norbert Seel (<em>Freiburg University</em>). The Three Learning Sciences (Biological, Artificial, Human)</td>
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## ITS 2012 Program • Day 5 • Monday June 18th 2012 • Main Conference

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<td><strong>Session 2.8 : Interaction strategies – Empirical studies</strong></td>
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<td><strong>Session 2.9 : Interaction strategies – Empirical studies</strong></td>
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### Session 1.8 : Feedback – Empirical studies
- **30m #59. Paquette, Lebeau, Beaulieu, Mayers.** Automating Next-Step Hints Generation Using ASTUS
- **30m #11. Azevedo, Landis, Feyzi Behnagh, Duffy, Trevis, Harley, Bouchet, Burlson, Taub, Pacampara, Yeasin, Rahman, Tanveer, Hassain.** The Effectiveness of Pedagogical Agents’ Prompting and Feedback in Facilitating Co-Adapted Learning with MetaTutor
- **30m #65. Walker, Rummel, Walker, Koedinger.** Noticing Relevant Feedback Improves Learning in an Intelligent Tutoring System for Peer Tutoring

### Session 2.8 : Interaction strategies – Empirical studies
- **30m #16. Martinez Maldonado, Yacef, Kay, Schwendimann.** An interactive teacher’s dashboard for monitoring multiple groups in a multi-tabletop learning environment
- **30m #92. Li, Cohen, Koedinger.** Efficient Cross-Domain Learning of Complex Skills
- **30m #68. Mitrovic, Mathews, Holland.** Exploring two strategies for teaching procedures

### Session 3.7 bis: Young Researcher Track
- **20m #183. Sharipova.** Supporting Students in the Analysis of Case Studies for Ill-Defined Domains
- **20m #190. Lehmann, Wilson, Barnes.** Using Individualized Feedback and Guided Instruction via a Virtual Human Agent in an Introductory Computer Programming Course
- **20m #201. Eagle, Barnes.** Data-driven Method for Assessing Skill Opportunity Recognition in Open Procedural Problem Solving Environments

### Session 1.9 : ITS in special domains
- **30m #170. Fournier-Viger, Nkambou, Mephu-Nguifo, Mayers, Faghihi.** Multi-Paradigm Generation of Tutoring Feedback in Robotic Arm Training
- **20m #136. Walker, Burleson.** User-Centered Design of a Teachable Robot
- **30m #44. Myney, Narayanan.** An Intelligent Tutoring and Interactive Simulation Environment for Physics Learning
- **20m #61. Olney, D’Mello, Person, Cade, Hays, Williams, Lehman, Graesser.** Guru: A Computer Tutor that Models Expert Human Tutors
- **20m #76. Grawemeyer, Johnson, Brosnan, Ashwin, Benton.** Developing an Embodied Pedagogical Agent With and For Young People with Autism Spectrum Disorder

### Session 2.9 : Interaction strategies – Empirical studies
- **20m #98. Segedy, Kinnebrew, Biswas.** Relating Student Performance to Action Outcomes and Context in a Complex, Choice-Rich Learning Environment
- **20m #5. Poitras, Lajoie, Hong.** Using the MetaHistoReasoning tool Training Module to Facilitate the Acquisition of Domain-Specific Metacognitive Strategies
- **20m #52. Lekira, Despré, Jacoboni, Py.** An Indicator-based Approach to Promote the Effectiveness of Teachers’ Interventions
- **20m #202. Kumar.** Limiting the Number of Revisions While Providing Error-Flagging Support During Tests

### Session 3.9 : Non-conventional approached
- **20m #189. Gong, Beck, Heffernan.** WEBsistments: Enabling an Intelligent Tutoring System to Excel at Explaining Teaching Other Than Coaching
- **20m #119. Hughes, Hastings, Maglino, Goldman, Lawless.** Automated approaches for detecting integration in student essays
- **20m #53. Blanchard.** On the WEIRD nature of ITS/AIED conferences: A 10 year longitudinal study analyzing potential cultural biases

### Next Generation Panel:
- **James Lester, Joseph Beck, Tanja Mitrovic and Cristina Conati.** Chair: Beverly Woolf.