

Santiago Ontañón Villar

Juan de la Cierva Postdoctoral Researcher
Artificial Intelligence Research Institute
(IIIA-CSIC), Barcelona, Spain
Phone: (+34) 935809570 * 222
E-mail: santi@iiia.csic.es
Website: <http://www.iiia.csic.es/~santi/>

Research Interests

Artificial intelligence (particularly case-based reasoning and game AI) and machine learning.

Education

Ph.D. in Computer Science (Artificial Intelligence) issued by the *Autonomous University of Barcelona* with the qualification of “Cum Laude”, 2005.

Advanced Studies Diploma in Computer Science and Artificial Intelligence issued by the *Autonomous University of Barcelona*, 2004 (equivalent to Masters in Computer Science).

Degree in Computer Science and Engineering (“Ingeniería Informática”) issued by the *Autonomous University of Barcelona*, 2000

Employment History

- May 2009 - present Juan de la Cierva Fellow, Artificial Intelligence Research Institute (IIIA-CSIC), Barcelona, Spain
- May 2006 – May 2009 Postdoctoral Fellow (hired to work in the Integrated Learning DARPA project), Georgia Institute of Technology, Atlanta, Georgia, US
- Sept 2004 – May 2006 Assistant Professor, University of Barcelona, Barcelona, Spain
- Jan 2001 – Sept 2004 Predoctoral FPI scholarship, Artificial Intelligence Research Institute (IIIA-CSIC), Barcelona, Spain

Publications

Journal Articles:

- J1. Manu Sharma, Santiago Ontañón, Manish Mehta and Ashwin Ram (2009), *Drama Management for Interactive Fiction Games*, to appear in Computational Intelligence. (Top-tier journal with impact factor 3.31)
- J2. Santiago Ontañón, Neha Sugandh, Kinshuk Mishra and Ashwin Ram (2009) *Online Case-Based Planning*, to appear in Computational Intelligence. (Top-tier journal with impact factor 3.31)

- J3. Enric Plaza and Santiago Ontañón (2006),
Learning Collaboration Strategies for Committees of Learning Agents, in Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS), Vol 13, Issue 3, pp. 429-461.
- J4. Eva Armengol, Santiago Ontañón and Enric Plaza (2005),
The explanatory power of symbolic similarity in case-based reasoning, in Artificial Intelligence Review, Vol. 24, N. 2, pp. 145 - 161.

Books:

- B1. Santiago Ontañón (2008),
Ensemble Case Based Learning for Multi-Agent Systems. VDM Verlag, ISBN-10: 3836474301, ISBN-13: 9783836474306.

Book Chapters:

- BC1. Santiago Ontañón and Enric Plaza (2008),
An Argumentation-Based Framework For Deliberation in Multi-Agent Systems, in Argumentation in Multi-Agent Systems, Lecture Notes in Artificial Intelligence (LNAI) Vol. 4946, pp 178-196, Springer Verlag.
- BC2. Manish Mehta and Santiago Ontañón and Ashwin Ram (2008),
Adaptive Computer Games: Easing the Authorial Burden, in Steve Rabin (Editor), AI Game Programming Wisdom 4. pp. 617-632. (Leading Game AI series, peer-reviewed for scientific merit and well-read by industry practitioners)
- BC3. Santiago Ontañón and Kinshuk Mishra and Neha Sugandh and Ashwin Ram (2008),
Learning from Demonstration and Case-Based Planning for Real-Time Strategy Games, in Soft Computing Applications in Industry (ISBN 1434-9922 (Print) 1860-0808 (Online)), p. 293-310
- BC4. Santiago Ontañón and Enric Plaza (2007),
Arguments and Counterexamples in Case-based Joint Deliberation, in N. Maudet and S. Parsons and I. Rahwan (Editors), Argumentation in Multi-Agent Systems, Lecture Notes in Artificial Intelligence (LNAI) Vol. 4766, p. 36-53, Springer Verlag.
- BC5. Jesús Cerquides, Maite López-Sánchez, Santiago Ontañón, Eloi Puertas, Anna Puig, Oriol Pujol, Dani Tost (2005),
Learning Methods for Automatic Classification of Biomedical Volume Datasets, in CAEPIA05 post-proceedings volume.
- BC6. Enric Plaza and Santiago Ontañón (2003),
Cooperative Multiagent Learning, in Adaptive Agents and Multi-Agent Systems, Lecture Notes on Artificial Intelligence (LNAI) Vol. 2636. p. 1-17. Springer Verlag.

Top-Tier International Conferences:

- T1. Manish Mehta and Santiago Ontañón and Ashwin Ram (2009),
Using Meta-Reasoning to Improve the Performance of Case-Based Planning, in ICCBR 2009. Lecture Notes in Computer Science (LNCS) Vol. 5650, p. 210-224. Springer Verlag.

- T2. Santiago Ontañón and Enric Plaza (2009),
On Similarity Measures based on a Refinement Lattice, in ICCBR 2009. Lecture Notes in Computer Science (LNCS) Vol. 5650, p. 240-255. Springer Verlag.
- T3. Jainarayan Radhakrishnan and Santiago Ontañón and Ashwin Ram (2009),
Goal-Driven Learning in the GILA Integrated Intelligence Architecture, in proceedings of IJCAI 2009. P. 1205-1210.
- T4. Xiaoqin (Shelley) Zhang, Sungwook Yoon, Phillip DiBona, Darren Scott Appling, Li Ding, Janardhan Rao Doppa, Derek Greeny, Jinhong K. Guo, Ugur Kuter, Geoff Levine, Reid L. MacTavish, Daniel McFarlane, James R Michaelis, Hala Mostafa, Santiago Ontañón, Charles Parker, Jainarayan Radhakrishnan, Antons Rebguns, Bhavesh Shrestha, Zhexuan Song, Ethan B. Trehwitt, Huzaifa Zafar, Chongjie Zhang, Dan Corkill, Gerald DeJong, Thomas G. Dietterich, Subbarao Kambhampati, Victor Lesser, Deborah L. McGuinness, Ashwin Ram, Diana Spears, Prasad Tadepalli, Elizabeth T. Whitaker, Weng-Keen Wong, James A. Hendler, Martin O. Hofmann, Kenneth Whitebread (2009),
An Ensemble Learning and Problem Solving Architecture for Airspace Management, in proceedings of IAAI-2009. P. 203-210.
- T5. Neha Sugandh and Santiago Ontañón and Ashwin Ram (2008),
On-Line Case-Based Plan Adaptation for Real-Time Strategy Games, in proceedings of AAI-2008. p. 702-707.
- T6. Kinshuk Mishra and Santiago Ontañón and Ashwin Ram (2008),
Situation Assessment for Plan Retrieval in Real-Time Strategy Games, in ECCBR-2008. Lecture Notes in Computer Science (LNCS) Vol. 5239, p. 355-369. Springer Verlag.
- T7. Neha Sugandh and Santiago Ontañón and Ashwin Ram (2008),
Real-Time Plan Adaptation for Case-Based Planning in Real-Time Strategy Games, in ECCBR-2008. Lecture Notes in Computer Science (LNCS) Vol. 5239, p. 534-547. Springer Verlag.
- T8. Santiago Ontañón and Kinshuk Mishra and Neha Sugandh and Ashwin Ram (2007),
Case-Based Planning and Execution for Real-Time Strategy Games, in ICCBR 2007, Lecture Notes in Computer Science (LNCS) Vol. 4626. p. 164 – 178. Springer Verlag.
- T9. Santiago Ontañón and Enric Plaza (2007),
Learning and Joint Deliberation through Argumentation in Multi-Agent Systems, in Autonomous Agents and Multi-Agent Systems (AAMAS 2007).
- T10. Santiago Ontañón and Enric Plaza (2007),
Case-based Learning from Proactive Communication, in International Joint Conference on Artificial Intelligence (IJCAI 2007).
- T11. Santiago Ontañón and Enric Plaza (2005),
Recycling Data for Multi-Agent Learning, in Luc de Raed and Stefan Wrobel (Eds.) Proceedings 22nd International Conference on Machine Learning (ICML 2005), p. 633-640. ACM Press.
- T12. Santiago Ontañón and Enric Plaza (2004),
Justification-based Selection of Training Examples for Case Base Reduction, in J.F. Boulicaut, F. Esposito, F. Giannotti and D. Pedresh (Eds.) Proceedings of the fifteenth European Conference on Machine Learning (ECML 2004). Lecture Notes in Artificial Intelligence (LNAI) Vol. 3201, p. 310-321. Springer-Verlag.

- T13. Santiago Ontañón and Enric Plaza (2004),
Justification-based Case Retention, in P.A. Gonzalez and P. Funk (Eds.) Proceedings of the seventh European Conference on Case Based Reasoning (ECCBR 2004). Lecture Notes in Artificial Intelligence (LNAI) Vol. 3155, p. 346-360. Springer-Verlag.
- T14. Santiago Ontañón and Enric Plaza (2003)
Collaborative Case Retention Strategies for CBR Agents, in “Advances in Case-Based Reasoning”, proceedings of the fifth International Conference on Case Based Reasoning (ICCBR 2003). Lecture Notes on Artificial Intelligence (LNAI) Vol. 2689, p. 392-406.
- T15. Santiago Ontañón and Enric Plaza (2003),
Justification-based Multiagent Learning, in proceedings of the Twentieth International Conference on Machine Learning (ICML 2003), Washington D.C, USA, August 2003, p. 576-583, Morgan Kaufmann.
- T16. Santiago Ontañón and Enric Plaza (2003),
Learning to Form Dynamic Committees, in proceedings of the second International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2003), Melbourne, Australia, July 2003, p. 504-511. ACM Press.
- T17. Santiago Ontañón and Enric Plaza (2002),
A Bartering Approach to Improve Multiagent Learning, in proceedings of the first International joint conference on Autonomous Agents and Multiagent Systems (AAMAS 2002), July 2002, p.386-393. ACM press.
- T18. Santiago Ontañón and Enric Plaza (2002),
Collaboration Strategies to Improve Multiagent Learning, in T. Elomaa, H. Mannila, H. Toivonen (Eds.) in proceedings of the thirteenth European Conference on Machine Learning (ECML 2002). Lecture Notes in Artificial Intelligence (LNAI) Vol. 2430, p. 331-344. Springer-Verlag.
- T19. Santiago Ontañón and Enric Plaza (2001),
Learning When to Collaborate among Learning Agents, in L. De Raedt, P. Flach (Eds.) “Machine Learning: ECML 2001”, proceedings of the twelfth European Conference on Machine Learning (ECML 2002). Lecture Notes in Artificial Intelligence (LNAI) Vol. 2167, p. 394-405. Springer-Verlag.
- T20. Enric Plaza and Santiago Ontañón (2001),
Ensemble Case-based Reasoning: Collaboration Policies for Multiagent Cooperative CBR, in “Case-Based Reasoning Research and Development: ICCBR 2001”, proceedings of the fourth International Conference on Case Based Reasoning. Lecture Notes in Artificial Intelligence (LNAI) Vol. 2080, p. 437-451. Springer-Verlag.

Other Peer-reviewed Conferences:

- C1. Jichen Zhu and Santiago Ontañón (2010),
Towards Analogy-Based Story Generation, in First International Conference in Computational Creativity (ICCC-X 2010), to appear.
- C2. Andrea Corradini, Manish Mehta, Santiago Ontañón (2009),
Evaluation of a Drama Manager Agent for an Interactive Story-Based Game, in

- International Conference on Interactive Digital Storytelling, ICIDS 2009.
- C3. Andrea Corradini, Manish Mehta, Santiago Ontañón (2009),
Evaluating a Drama Management Approach in an Interactive Fiction Game, in 2009 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2009).
- C4. Santiago Ontañón and Abhishek Jain and Manish Mehta and Ashwin Ram (2008),
Developing a Drama Management Architecture for Interactive Fiction Games. in International Conference on Interactive Digital Storytelling ICIDS 2008, Erfurt, Germany, p. 186-197.
- C5. Suhas Virmani, Yatin Kanetkar, Manish Mehta, Santiago Ontañón and Ashwin Ram (2008),
An Intelligent IDE for Behavior Authoring in Real-Time Strategy Games, in AIIDE-2008.
- C6. Andrew Trusty, Santiago Ontañón and Ashwin Ram (2008),
Stochastic Plan Optimization in Real-Time Strategy Games, in AIIDE-2008.
- C7. Manu Sharma and Santiago Ontañón Manish Mehta and Ashwin Ram (2007),
Drama Management Evaluation for Interactive Fiction Games, in AAAI-2007 Intelligent Narratives Technologies Fall Symposium, p.138-145.
- C8. Manish Mehta and Santiago Ontañón and Ashwin Ram (2007),
Driving Interactive Drama Research through Building Complete systems, in AAAI-2007 Intelligent Narratives Technologies Fall Symposium, p. 83-86.
- C9. Maite López-Sánchez, Jesús Cerquides, Santiago Ontañón, Anna Puig, Eloi Puertas (2006),
Learning Methods Applied to High-Resolution CT Colume Data Classification, in 3IA 2006.
- C10. Jesús Cerquides, Maite López-Sánchez, Santiago Ontañón, Eloi Puertas, Anna Puig, Oriol Pujol, Dani Tost (2005),
Learning Methods for Automatic Classification of Biomedical Volume Datasets, in XI Conferencia de la Asociación Española para la Inteligencia Artificial (CAEPIA05). P 143 – 152.
- C11. Santiago Ontañón and Enric Plaza (2002),
Cooperative Case Bartering for Case-Based Reasoning Agents, in “Topics in Artificial Intelligence: CCIA'02”. Lecture Notes in Artificial Intelligence 2504, p. 294-308. Springer-Verlag.
- C12. Santiago Ontañón and Enric Plaza (2002),
Cooperative Case Bartering for Case-Based Reasoning Agents, in 2002 AAAI Spring Symposium Series, p.77-83. AAAI Press.

Workshops:

- W1. Santiago Ontañón and Enric Plaza (2009),
Argumentation-based Distributed Induction, in Workshop on Agreement Technologies 2009 (CAEPIA 2009).
- W2. Manish Mehta, Santiago Ontañón and Ashwin Ram (2009),
Authoring Behaviors for Games using Learning from Demonstration, in the ICCBR-09 Workshop on Case-Based Reasoning for Computer Games.

- W3. Santiago Ontañón and Kane Bonnette and Prafulla Mahindrakar and Marco A. Gómez-Martín and Katie Long and Jainarayan Radhakrishnan and Rushabh Shah and Ashwin Ram (2009),
Learning from Human Demonstrations for Real-Time Case-Based Planning, in the IJCAI-09 Workshop on Learning Structural Knowledge From Observations.
- W4. Santiago Ontañón and Enric Plaza (2008),
Learning, Information Exchange, and Joint-Deliberation Through Argumentation in Multi-Agent Systems, in On The Move Federated Conferences, OTM 2008 (invited paper).
- W5. Santiago Ontañón and Enric Plaza (2002),
Argumentation-based Information Exchange in Prediction Markets, in ArgMAS 2008 workshop, located in AAMAS 2008.
- W6. Manu Sharma and Manish Mehta and Santiago Ontañón and Ashwin Ram (2007),
Evaluating Player Modeling for a Drama Manager Based Interactive Fiction, in AIIDE'07 Workshop on Optimizing Player Satisfaction.
- W7. Ashwin Ram and Santiago Ontañón and Manish Mehta (2007),
Artificial Intelligence for Adaptive Computer Games, in FLAIRS 2007 CBR Special Track (invited paper).
- W8. Manu Sharma and Santiago Ontañón and Christina Strong and Manish Mehta and Ashwin Ram (2007),
Towards Player Preference Modeling for Drama Management, in *Interactive Stories*, in FLAIRS Games and Entertainment Special Track 2007.
- W9. Santiago Ontañón and Enric Plaza (2007),
An Argumentation based Approach to Multi-Agent Learning, in FLAIRS CBR Special Track 2007.
- W10. Santiago Ontañón and Enric Plaza (2006),
Arguments and Counterexamples for Case-based Joint Deliberation, in ArgMAS 2006 workshop in AAMAS 2006.
- W11. Eva Armengol, Santiago Ontañón and Enric Plaza (2004),
Explaining Similarity in CBR, in Workshop in Explanation in CBR in the ECCBR 2004. Technical report 142-04 Departamento de Sistemas Informáticos y Programación, Universidad Complutense de Madrid, p. 87-95. Springer-Verlag.
- W12. Santiago Ontañón and Enric Plaza (2001),
Collaboration Policies for Case-Based Reasoning Agents, in proceedings of the Workshop on Learning Agents, Autonomous Agents'2001.

Academic Activities

Conference/Workshop Organization:

2009 Co-organizer of the Special Track on Case-Based Reasoning in FLAIRS 2009

2008 Co-organizer of the Special Track on Case-Based Reasoning in FLAIRS 2008

Reviewer and Program Committee:

Journals Computational Intelligence Journal
 IEEE Transactions on Computational Intelligence and AI in Games Journal
 International Journal in Artificial Intelligence Journal (IJAI)

Program Committee

ECAI 2010
 FLAIRS Special Track on CBR 2010
 EUMAS 2009
 CAEPIA 2009
 ICCBR 2009 CBR and Games Workshop
 ECML 2007
 ICCBR 2005 CBR and Games Workshop

Teaching Experience

Fall 2008 CS 4731/CS 8803 Game AI, Georgia Tech
 Guest lecture

Fall 2007 CS 4803/CS 7620 Case Based Reasoning, Georgia Tech
 Designed the course syllabus, and guest lecture

Fall 2005 Programming Elements, University of Barcelona

Spring 2005 Introduction to Databases, University of Barcelona

Fall 2004 Operative Systems, University of Barcelona

Spring 2004 Data Structures, University of Barcelona

Advising Experience

2007 – 2009 Co-advised students under the supervision of Dr. Ashwin Ram:
 PhD students: Neha Sugandh
 Masters' students: Manu Sharma, Kinshuk Mishra, Jainarayan Radhakrishnan,
 Rushabh Shah, Prafulla Mahindrakar, Abhishek Jain, Yatin Kanetkar, Suhas
 Virmani and Kane Bonnette
 Undergraduate students: Andrew Trusty and Katie Long

Participation in Research Projects

2009 - present Next-CBR (Spanish National Project), at IIIA-CSIC

2009 - present Agreement Technologies (Spanish Consolider National Project), at IIIA-CSIC

2006 - 2009 GILA (DARPA Integrated Learning Program), at Georgia Tech

2006 DARPA Transfer Learning Program, at Georgia Tech

Awards and Honors

- 2009 Juan de la Cierva Fellowship
- 2007 Finalist in the European Cor Bayen Award (awarded to the most promising young researcher in computer science and applied mathematics)
- 2007 Marie Curie Postdoctoral Fellowship
(unable to accept due to employment at Georgia Tech)
- 2007 Fulbright Postdoctoral Fellowship
(unable to accept due to employment at Georgia Tech)
- 2001-2004 Predoctoral FPI Scholarship
- 2000 Special award for top 2 students graduating with the “Ingeniería Informática” (Computer Science and Engineering) Degree