

**Lola Cañamero**  
*Curriculum Vitae*

July 2, 2007

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Nationality: Spanish. Date of birth: July 13, 1965.

## 1. Higher Education and Qualifications

- **Nov. 1991 – July 1995:** Computer Science Department (LRI), University of Paris-Sud (XI), France. PhD in Computer Science. Dissertation title: REPLACE: A Model for Plan Recognition. Supervisor: Dr. Yves Kodratoff.
- **Oct. 1988 – June 1990:** Department of Logic, Complutense University of Madrid, Spain. Postgraduate course work, Artificial Intelligence doctoral program. Highest grades in all subjects (score: 9.5/10).
- **Sept. 1983 – June 1988:** Department of Philosophy, Complutense University of Madrid, Spain. Bachelors Degree (Hons, 1<sup>st</sup> class) in Philosophy. Highest grades and tuition exemption (honor) in most subjects (score: 9.4/10).

**Languages:** *Spanish*: mother tongue. Fluent *French* (spoken and written). Fluent *English* (spoken and written). English as a Second Language program of the Spanish-American Cultural Association (ACHNA) in Madrid. TOEFL taken January 1991 (score: 643/670).

## 2. Positions Held

- **Since March 2001: School of Computer Science, University of Hertfordshire, UK**  
Currently Reader in Adaptive Systems.
- **Mar 2000 – Mar 2001: LRI, University Paris–XI, France.**  
Senior Research Fellow (fixed-term part-time 4/5 CR2 contract). Work on knowledge and information extraction from electronic corpora (technical documentation, FAQs, e-mails) to improve technical help-desk services, within the project ASTUXE (description below).
- **Aug 1998 – March 2000: Artificial Intelligence Research Institute (IIIA), Spanish Scientific Research Council (CSIC), Spain.**  
Senior Research Fellow (fixed-term contract). I was responsible for research on adaptive agents, emotion and affective computing at the IIIA.
- **Feb 1998 – Aug 1998: Dept. of Computer Science (LSI - Lenguajes y Sistemas Informáticos), Technical University of Catalonia (UPC), Barcelona, Spain.**  
Lecturer in Computer Science. Duties: teaching (112 hours/semester), tutorial guidance (84 h/semester), others (examining, preparation of course material, administration, research, etc., 309 h/semester). Courses taught: Algorithms and Data Structures (lectures), Introduction to Programming (lectures and laboratory practice), both for 1st-year engineering students.

- **Jan 1997 – Dec 1997: Vrije Universiteit Brussel (VUB), Artificial Intelligence Laboratory, Belgium.**

Post-doctoral Research Fellow in the group of Prof. Luc Steels. Work on a model for agent interaction inspired from biological models of motivated behavior and emotional expression and communication. Simulation implemented in Lisp/CLOS.

- **Sep 1995 – Dec 1996: Massachusetts Institute of Technology, Artificial Intelligence Laboratory, USA.**

Post-doctoral Research Fellow in the group of Prof. Rodney Brooks. Work on a behavior-based agent architecture for action selection and behavior control (hormonal modulation of behavior), inspired from neuro-biological models of perception, motivated behavior, and (survival-related) emotions. Simulated micro-world implemented in Lisp/CLOS.

- **Sept 1994 – Jul 1995: Université de Paris-XI, Laboratoire de Recherche en Informatique (LRI), France.**

Research Fellow under the supervision of Dr. Yves Kodratoff. EU-funded Human Capital and Mobility project “Knowledge Acquisition, Validation, and Explanation for Knowledge-Based Systems” (contract ERBCHBGCT930395).

- **Nov 1991 – Jul 1995: Université de Paris-XI, Laboratoire de Recherche en Informatique (LRI), France.**

PhD student. Work on a plan recognition system for decision support in critical domains. Prototype application in the car driving domain. Model used to acquire and structure tactical knowledge in the military domain (consultant for EPCAD company).

- **1989 – 1991: Universidad Complutense de Madrid, Dept. of Logic, Spain.**

Research and teaching assistant. Work on intelligent tutoring systems within the SILOGISTA project, under the supervision of Prof. Manuel Garrido. Postgraduate course work and Master’s thesis.

- **Jul 1988 – Dec 1988: Espasa-Calpe Publishing Company, Madrid, Spain.**

Work as a designer and programmer of tools for information retrieval within the Hispanic Encyclopedia project. Development languages: Prolog and Lisp.

### 3. Research

#### RESEARCH INTERESTS

My research interests center around the study of adaptive intelligent behavior, which I explore with artificial autonomous creatures – robots and “animat” (artificial animal) simulations. I focus on motivated behavior and social interactions, with particular emphasis on the roles that emotional phenomena play in them.

*Topics:* Adaptive autonomous systems; artificial life; biologically-inspired AI and robotics; developmental robotics; embodied and situated intelligence and emotion; motivated behavior and action selection; social intelligence and robotics; philosophical and epistemological issues underlying artificial intelligence and artificial life.

#### PHD STUDENTS AND RESEARCH ASSISTANTS / FELLOWS

##### Supervision of doctoral and postdoctoral students

*Completed or submitted*

MPhil:

- 1998 – 1999: supervision of the MPhil of Eduard Giménez, enrolled in the doctoral program on Artificial Intelligence at the Autónoma University of Barcelona (UAB), Spain (full-time student). Topic: control

architectures for autonomous agents involved in collaborative team work (robotic soccer). Completed (viva) September 20, 1999.

#### PhD:

- March 2002 – February 2005: Principal supervisor of Orlando Avila-García (full-time student), ASRG, School of Computer Science, University of Hertfordshire. Topic: Towards Emotional Modulation of Motivation-Based Action Selection in Autonomous Robots. PhD completed (viva) February 9, 2005.
- January 2002 – February 2006: Second supervisor of Ignasi Cos-Aguilera. Institute for Perception, Action and Behaviour, University of Edinburgh (full-time student) and visiting scientist at the ASRG, School of Computer Science, UH. Principal supervisor: Dr. Gillian Hayes. Topic: Ecological Adaptation in the Context of an Actor-Critic Learning Algorithm. PhD completed (viva) February 24, 2006.
- January 2003 – November 2006: Principal supervisor of Robert Lowe (full-time student), ASRG, School of Computer Science, University of Hertfordshire. Topic: The Evolution of Affective Displays and Related Strategies. PhD completed (viva) November 30, 2006.

#### Research Assistants and Research Fellows:

- April – September 2004: supervisor of the HUMAINE Post-doctoral Research Fellow Richard French. Topic: Biologically-inspired robotic models of emotion. ASRG, School of Computer Science, University of Hertfordshire.
- January 2005 – August 2006: supervisor of Robert Marsh, HUMAINE Research Assistant, ASRG, School of Computer Science, University of Hertfordshire. Topic: Emotion in Embodied Cognition and Action.

#### *Submitted or writing up*

- January 2004 – present: Principal supervisor of Arnaud Blanchard (full-time student), ASRG, School of Computer Science, University of Hertfordshire. Topic: The role of affect in imitation. Viva to be held on August 2, 2007.

#### *Present*

- December 2003 – present: Principal supervisor of Susan Attwood (part-time student, UH staff member), ASRG, School of Computer Science, University of Hertfordshire. Topic: The dynamics of affect-based relationships in social groups.
- Since June 2005: second supervisor of David Bowes (part-time student, UH staff member), ASRG, School of Computer Science, University of Hertfordshire. Topic: development of neural controllers for autonomous robots.
- Since January 2006: Principal supervisor of Peter-Paul Pichler (full-time student), ASRG, School of Computer Science, University of Hertfordshire. Topic: The evolution of affect-based regulatory systems for autonomous robots.
- Since November 2006: Principal supervisor of Antoine Hiolle (full-time student; FEELIX GROWING Research Assistant since January 2007), School of Computer Science, University of Hertfordshire. Topic: Modeling attachment in robots from an epigenetic perspective.
- Since October 2006: Second supervisor of Nicolas Oros (full-time student), Neural Networks Research Group (co-supervision with Prof. Rod Adams and Dr Neil Davey), School of Computer Science, University of Hertfordshire. Topic: The development of neural controllers for robots.
- Since January 2007: supervision of Karla Parussel, HUMAINE postdoctoral Research Fellow. Topic: neuromodulation as a basis to model emotions.
- Since January 2007: supervisor of Etienne De Sevin, HUMAINE postdoctoral Research Fellow. Topic: emergent emotions via hormonal modulation in groups of robots.

#### **Internal and external examiner of doctoral students**

1. Internal examiner of the PhD viva of Maite López-Sánchez, Universidad Autónoma de Barcelona, Spain, September 1999. Principal supervisor: Prof. Ramon López de Mántaras.
2. External examiner of the PhD viva of Keith Anderson, Queen Mary, London, UK, March 17, 2004. Principal supervisor: Dr. Peter McOwan.
3. External examiner of the PhD viva of Carlos Delgado-Mata, University of Salford, UK, May 18, 2004. Principal supervisor: Prof. Ruth Aylett.
4. External examiner of the PhD viva of Yasmine Arafa, Imperial College London, UK. September 2, 2005. Principal supervisor: Prof. Ebrahim Mamdani.

5. Internal examiner of the PhD viva of David Jacob, University of Hertfordshire, UK, September 23, 2005. Principal supervisor: Dr. Daniel Polani.
6. Internal examiner of the 1<sup>st</sup> Progression viva of Dorothée François, University of Hertfordshire, UK, November 24, 2005. Principal supervisor: Prof. Kerstin Dautenhahn.
7. External examiner of the PhD viva of Etienne de Sevin, EPFL (Ecole Polytechnique Federale de Lausanne), Lausanne, Switzerland, February 2, 2006. Principal supervisor: Prof. Daniel Thalmann.
8. External examiner of the PhD viva of Karla Parussel, University of Stirling, Scotland, UK, October 13, 2006. Principal supervisor: Prof. Leslie S. Smith.
9. External examiner of the PhD viva of Enrique León, Essex University, UK, January 10, 2007. Principal supervisor: Prof. Vic Callaghan.
10. Internal examiner of the PhD viva of Joe Sanders, ASRG, University of Hertfordshire, UK, January 29, 2007. Principal supervisor: Prof. Chrystopher Nehaniv.
11. External examiner of the PhD viva of Tal Sobol Shikler, Computer Laboratory, University of Cambridge, UK, June 22, 2007. Principal supervisor: Prof. Peter Robinson.
12. External examiner of the PhD viva of María Malfaz Vázquez, Dept. Systems Engineering and Automation, University Carlos III of Madrid, Madrid, Spain. July 5, 2007. Principal supervisor: Prof. Miguel Angel Salichs.

## RESEARCH VISITS

- **Between June and December 2002 (1 month): ENSEA, Université de Cergy-Pontoise, France**  
Invited Professor (Enseignant-Chercheur invité) for 1 month (stay divided into 2-week periods) in the Neurocybernetics Group of Prof. Philippe Gaussier to work on an expressive robotic head and its use to investigate emotional expression and recognition in autistic children.
- **November 1999 – February 2000 (3 months): LEGO-Lab, University of Aarhus, Denmark.**  
Invited research scientist in the group of Prof. Henrik H. Lund. Design and programming of a “humanoid” expressive LEGO robot.
- **April – May 1999 (1 month): LIP6, Université de Paris VI, France.**  
Visiting scientist in the group of Prof. Jean-Arcady Meyer.
- **March 1997: Electrotechnical Laboratory (ETL), Tsukuba, Japan.**  
Invited visiting scientist in the group of Prof. Hideyuki Nakashima.
- **1992 (Oct – Dec): Vrije Universiteit Brussel (VUB), AI Laboratory, Belgium.**  
Visiting researcher in the group of Prof. Luc Steels. Work on the integration of validation and knowledge acquisition within the KADS-II and Components of Expertise methodologies for knowledge-based systems development, and in the KREST workbench.
- **1991 (Mar – Jun): ENSTA and LRI-Université de Paris-XI, France.**  
Visiting researcher in the group of Dr. Yves Kodratoff. Work on cognitive modeling of machine learning algorithms (explanation-based learning and conceptual clustering).

## PROFESSIONAL (ACADEMIC) ACTIVITIES

### Conferences

#### *Chair and Organizing Committees*

- **ACII 2007**  
Organizing Committee (Publicity Chair) of the *Second International Conference on Affective Computing and Intelligent Interaction*, Lisbon, Portugal, September 12-14, 2007.
- **HUMAINE Plenary 2007**  
Organizer of Session *Emotion in Cognition and Action: Beyond HUMAINE* at the 3<sup>rd</sup> Plenary meeting of the HUMAINE NoE. Paris, France, June 4-6, 2007.
- **IST 2006**  
Organizer of the Networking Session *Embodied Emotion, Cognition and Action for Autonomous and Interactive Artifacts* at the *IST 2006 Event* of the European Commission, Helsinki, Finland, November 22, 2006.
- **IEEE RO-MAN 2006**  
Organizing Committee (Publications Co-chair) of the *Fifth IEEE International Symposium on Robot and Human Interactive Communication: "Getting to Know Socially Intelligent Robots"*, University of Hertfordshire, Hatfield, UK, September 6-8, 2006.
- **HUMAINE Cross-Currents 2006**  
Organizer of session *Interplays between Theoretical and Operational Models of Emotion: Towards Bridging Gaps in Emotion Research* within the HUMAINE Cross-Currents Meeting, Athens, Greece, June 26-28, 2006.
- **ISRE 2005**  
Organizer, with Prof. Klaus Scherer and Prof. Jonathan Gratch, of the symposium *Computational Modeling of the Emotion Architecture* within the *XIII Conference of the International Society for Research on Emotion (ISRE 2005)*, Bari, Italy, July 11-15, 2005.
- **HUMAINE WP7 2005**  
Organizer of the workshop *Emotion in Cognition and Action* as part of the EU-funded FP6 Network of Excellence HUMAINE. King's College London, UK, July 4-5, 2005.
- **AISB 2005**
  - Chair of the AISB'05 Symposium *Agents that Want and Like: Motivational and Emotional Roots of Cognition and Action*. University of Hertfordshire, UK, April 14-15, 2004.
  - Member of the Local Organizing Committee of the 2005 AISB Convention "Social Intelligence and Interaction in Animals, Robots and Agents", University of Hertfordshire, UK, April 12-15, 2004.
- **AAAI 2004 SSS**  
Chair, with Dr. Eva Hudlicka, of the symposium *Architectures for Modeling Emotion: Cross-Disciplinary Foundations*, of the *2004 Spring Symposium Series of the American Association for Artificial Intelligence*, Stanford University, Palo Alto, CA, USA, March 22–24, 2004.
- **Robotics in Autism Therapy 2002**  
Member of the Organizing Committee of the *Second International Workshop on Robotics and Virtual Interactive Systems in Therapy for Autism and Other Psychopathological Disorders*, Paris, September 27-28, 2002.
- **AISB 2002**  
Chair, with Prof. Ruth Aylett, of the symposium *Animating Expressive Characters for Social Interactions*, within the *2002 Convention of The Society for the Study of Artificial Intelligence and the Simulation of Behaviour (AISB'02)*, Imperial College, London, UK, 4th-5th April, 2002.
- **AAAI 2001 FSS**  
Chair of the symposium *Emotional and Intelligent II: The Tangled Knot of Social Cognition*, of the *2001 Fall Symposium Series of the American Association for Artificial Intelligence*, North Falmouth, MA, USA, November 2–4, 2001.
- **AAAI 1998 FSS**  
Chair of the symposium *Emotional and Intelligent: The Tangled Knot of Cognition*, of the *1998 Fall Symposium Series of the American Association for Artificial Intelligence*, Orlando, Florida, USA, October 23–25, 1998.
- **SAB'98**

Chair (with Dr. Chisato Numaoka and Dr. Paolo Petta) of the workshop *Grounding Emotions in Adaptive Systems*, within the *5th International Conference of the Society for Adaptive Behavior*, Zurich, Switzerland, August 21, 1998.

- **ECML'98**  
Chair (with Prof. Maarten van Someren) of the workshop *Human Learning Meets Machine Learning*, associated with the *European Conference on Machine Learning*, Chemnitz, Germany, April 24, 1998.
- **MLnet MLSS'94**  
Local organization and secretariat of the *MLnet Summer School on Machine Learning and Knowledge Acquisition*, Dourdan, France, September 5–10, 1994. Scientific organization: Dr. Céline Rouveiroi. School funded by the EU Network of Excellence MLnet (ESPRIT 7115).
- **MLnet ILSW'94**  
Local organization and secretariat of the *MLnet Workshop on Industrial Applications of Machine Learning*, Dourdan, France, September 2–3, 1994. Scientific organization: Dr. Yves Kodratoff. School funded by the EU Network of Excellence MLnet (ESPRIT 7115).

#### *Program Committees*

- **EpiRob'07**  
*Seventh International Conference on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems*, Rutgers University, Piscataway, NJ, USA, November 5-7, 2007.
- **IVA'07**  
*Seventh International Conference on Intelligent Virtual Agents*, Paris, France, September 15-17, 2007.
- **ACII 2007**  
*Second International Conference on Affective Computing and Intelligent Interaction*, Lisbon, Portugal, September 12-14, 2007.
- **IWINAC 2007**  
*Second International Work-Conference on the Interplay between Natural and Artificial Computation*, La Manga del Mar Menor, Murcia, Spain, June 18-21, 2007.
- **AISB'07**  
AISB'07 Symposium *Affective Environments*, Newcastle University, Newcastle upon Tyne, UK, April 2-5, 2007.
- **Humanoids'06**  
*2006 IEEE-RAS International Conference on Humanoid Robots*, Genoa, Italy, December 4-6, 2006.
- **EpiRob'06**  
*Sixth International Conference on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems*, Paris, France, September 20-22, 2006.
- **IEEE RO-MAN 2006**  
*Fifth IEEE International Symposium on Robot and Human Interactive Communication: "Getting to Know Socially Intelligent Robots"*, University of Hertfordshire, Hatfield, UK, September 6-8, 2006.
- **IVA'06**  
*Sixth International Conference on Intelligent Virtual Agents*, Marina de Rey, CA, USA, August 21-23, 2006.
- **ACE'06 at EMCSR 2006**  
*Agent Construction and Emotions: Modeling the Cognitive Antecedents and Consequences of Emotion*, Symposium at the *18th European Meeting on Cybernetics and Systems Research (EMCSR 2006)*, Vienna, Austria, April 18-20, 2006.
- **AC at EPIA 2005**  
*Affective Computing: Towards Affective Intelligent Systems*, workshop of the *12<sup>th</sup> Portuguese Conference on Artificial Intelligence*, Covilhã, Portugal, December 5-8, 2005.
- **ACII 2005**  
*First International Conference on Affective Computing and Intelligent Interaction*, October 22-24, 2005 Beijing, China.
- **IVA'05**  
*Fifth International Working Conference on Intelligent Virtual Agents*. Kos, Greece, September 12-14, 2005.
- **MNAS at IJCAI'05**  
*Modeling Natural Action Selection*, Workshop of the *19<sup>th</sup> International Joint Conference on Artificial Intelligence (IJCAI'05)*, Edinburgh, UK, July 30-31, 2005.
- **RoboCup 05**  
*RoboCup 2005 International Symposium*. Osaka, Japan, July 13-19, 2005.
- **IWINAC'05**

*Robotics and Neurobiology: On the Interplay between Robotic Artifacts and Living Systems*, workshop at the 1<sup>st</sup> International Conference on the Interplay between Natural and Artificial Computation (IWINAC'05), Las Palmas de Gran Canaria, Spain, June 17, 2005.

- **RoboCup04**  
*RoboCup 2004 International Symposium*. Lisbon, Portugal, June 27 – July 5, 2004.
- **ACE'04 at EMCSR 2004**  
*Affective Computational Entities*, Symposium at the 17th European Meeting on Cybernetics and Systems Research (EMCSR 2004), Vienna, Austria, April 13, 2004.
- **IVA'03**  
*4th International Working Conference on Intelligent Virtual Agents*. Kloster Irsee, Germany, September 15-17, 2003.
- **RoboCup03**  
*RoboCup 2003 International Symposium*. Padua, Italy, July 10-11, 2003.
- **FLAIRS'03**  
*Special Track: Integrating Emotion and Cognition in Formal Models*, 16<sup>th</sup> Intl. FLAIRS Conference. St Augustine, Florida, USA, May 12-14, 2003.
- **WGW'02**  
*EPSRC/BBSRC International Workshop Biologically-Inspired Robotics: The Legacy of W. Grey Walter*. August 14-16, 2002, HP Bristol Labs, UK.
- **ACE'02 at EMCSR 2002**  
*Agent Construction and Emotions*, Symposium at the 16th European Meeting on Cybernetics and Systems Research (EMCSR 2002), Vienna, Austria, April 2, 2002.
- **SCAI'01**  
*7th Scandinavian Conference on Artificial Intelligence*. Odense, Denmark, February 19–21, 2001.
- **SCI'00**  
*World Conference on Systemics, Cybernetics, and Informatics*, Orlando, Florida, USA, July 23–26, 2000.
- **ACE 2000 at EMCSR'2000**  
*Symposium on Autonomy and Control: Lessons from the Emotional*, within the 15<sup>th</sup> European Meeting on Cybernetics and Systems Research. Vienna, Austria, April 25–28, 2000.
- **IAS'99**  
*Conférence sur l'Intelligence Artificielle Située*, (Situated AI) organized by Jean-Arcady Meyer and Alexis Drogoul, LIP6, Université Paris-VI, Paris, France, October 25–28, 1999.
- **I3 AC'99**  
*Intl. Workshop on Affects in Interaction: Towards a New Generation of Interfaces*, within the Annual Conference of the EC I3 Programme, Sienna, Italy, October 20-21, 1999.
- **SCI'99**  
*World Conference on Systemics, Cybernetics, and Informatics*, Orlando, Florida, USA, August 1–3, 1999.
- **ACAI'99**  
*Workshop on Biologically-Inspired Machine Learning*, associated with *Machine Learning and Applications: Advanced Course on Artificial Intelligence 1999* (ACAI'99), July 5–16, 1999, Chania, Greece.
- **Agents'99**
  - *3rd International Conference on Autonomous Agents* (Agents'99), Seattle, Washington, May 1-5, 1999.
  - *Agents'99 Workshop on Emotion-Based Agent Architectures*. Seattle, Washington, May 1, 1999.
- **AISB'99**  
*Workshop on Imitation in Animals and Artifacts*, AISB'99 Convention (Society for the Study of Artificial Intelligence and Simulation of Behaviour), University of Edinburgh, UK, April 6-9, 1999.
- **AAAI'98**  
*Workshop on Software Tools for Developing Agents* associated with the *Conference of the American Association for Artificial Intelligence* (AAAI'98), Madison, Wisconsin, USA, July 26–27, 1998.
- **AIPS'98**  
*Workshop Knowledge Engineering and Acquisition for Planning: Bridging Theory and Practice*, within the *Fourth International Conference on Artificial Intelligence Planning Systems* (AIPS-98), Carnegie Mellon University, PA, USA, June 7–1, 1998.
- **SCI'98**  
*World Conference on Systemics, Cybernetics, and Informatics*, Orlando, Florida, USA, July 20–24, 1998.
- **SCI'97**  
*World Conference on Systemics, Cybernetics, and Informatics*, Caracas, Venezuela, July 7–11, 1997.
- **ECAI'94**  
*Workshop on Integration of Machine Learning and Knowledge Acquisition* at the European Conference on Artificial Intelligence (ECAI'94), Amsterdam, The Netherlands, August 8–12, 1994.

## Invited talks (accepted only)

### *Invited talks at Conferences, Workshops, and Science Events*

- “You, Emotional Robot?”, invited presentation and public debate at the 2007 Cheltenham Science Festival (session “You, Robot?”), Cheltenham, UK, June 8, 2007 ([www.cheltenhamfestivals.com](http://www.cheltenhamfestivals.com)).
- “Deconstructing Emotions with Robots”, invited talk at the HUMAINE workshop *Conceptualizing Emotions*, University of Haifa, Israel, May 6-9, 2007. Organizer: Prof. Aaron Ben-Ze'ev.
- “Emotions for Social Robots and Machines”, two invited talks at the first event of the series *Fairground: Thrill Laboratory – Pleasure* (<http://www.danacentre.org.uk/events/programmes/6>). Dana Centre of the Science Museum, London, October 17 and 18, 2006. Curator: Brendan Walker.
- “Emotion-Oriented Architectures: An Embodied Robotics Approach”, *XIII Conference of the International Society for Research on Emotion* (ISRE 2005), Bari, Italy, July 14, 2005.
- “Emotion-Oriented Architectures: An Embodied Robotics Approach”, invited talk at the symposium *Computational Modeling of Emotion: Issues and Alternatives* organized by Prof. Klaus Scherer and Dr. Paolo Petta within the 2<sup>nd</sup> Plenary Meeting of the HUMAINE Network of Excellence, Newcastle, Northern Ireland, UK, May 24-27, 2005.
- “Dimensions of Sociality: What Can We Learn from “Emotional” Robots?”, Workshop *Dimensions of Sociality: Shaping Relationships with Machines*. ÖFAI, Vienna, Austria, November 19-20, 2004.
- “Robots as Tools and Models for Emotion Research”, ESF Workshop *Social Communication and the Face*, MRC Cognition and Brain Science Unit, University of Cambridge, UK, September 20-22, 2004.
- “Emotion in Cognition and Action”, HUMAINE WP4 Workshop *From Signals to Signs of Emotion*. Santorini, Greece, September 18-21, 2004.
- “The Future of Affective Robots”, NESTA Futurelab Adventure Fund Workshop, *The Future of Affective Technology*. NESTA Futurelab, Bristol, UK, July 21, 2004.
- “Identifying Theoretical Solutions to Resolve Problems: Possible Solutions from Robotic Models of Emotions”, HUMAINE WP3 Workshop *Theories and Models of Emotions*. Geneva, Switzerland, June 17-19, 2004.
- “Emotions et systèmes robotiques”, *Journées Nationales de la Société Française de Psychologie*, Poitiers, France, September 24-26, 2003.
- “Emotion Understanding; Robots as Tools and Models” (with Philippe Gaussier). *Second Intl. Workshop on Robotic and Virtual Interactive Systems in Therapy of Autism and other Psychopathological Disorders*, Hôpital de La Salpêtrière, Paris, France, September 27-28, 2002.
- “Le visage et la voix des robots”. *Colloque International Pluridisciplinaire Le Visage et la Voix*, Centre Culturel International de Pontigny – Cerisy, France. June 30, 2002.
- “Les artefacts émotionnels : vers une interaction sociale”. *Rencontres Musicales Pluridisciplinaires “L’art, la pensée et les émotions”*. Musée des Beaux-Arts, Lyon, France. March 17, 2001.
- “Y a-t-il une place pour les émotions en robotique?” (with Philippe Gaussier). *Seminar Phiteco-Costech “Cognition, émotion, and désir Technique”* funded by the EU (ERASMUS Program). Compiègne, France, January 23, 2001.
- “What Emotions are necessary in HCI?” *Special session on Practical Affective Computing at the 8<sup>th</sup> International Conference on Human-Computer Interaction*, Munich, Germany, August 24, 1999. Organizers: C. Dryer and G. Prabhu.
- “Designing Emotions for Activity Selection in Autonomous Agents”. Workshop *Emotions in Humans and Artifacts*, ÖFAI, Vienna, Austria, August 13, 1999. Organizer: Robert Trappal.
- “Emotions humaines et artificielles : un moteur pour la cognition”. Plenary talk at the conference of the French Association for AI (AFIA) *Plate-Forme AFIA 1999*. Ecole Polytechnique, Palaiseau (Paris), June 16, 1999. General conference chair: Michèle Sebag.
- “Towards a Unified Framework for Knowledge Engineering: Coupling Validation within the KBS Development Process”. Workshop on *Validation of Knowledge-Based Systems*, Artificial Intelligence Laboratory, VUB, Brussels, Belgium, November 28, 1992. Organizer: Dr. W. Van de Velde.

### *Invited Seminars*

- “Affect-Oriented Architectures for Autonomous and Social Robots”, UCL Interaction Centre (UCLIC), London, April 18, 2007. Host: Dr Nadia Berthouze.
- “Modeling Affective Phenomena in Autonomous Robots”, COGS research seminar, University of Sussex, UK, November 22, 2005. Host: Dr. Ron Chrisley.

- “An Incremental Approach to Investigating Emotions in Autonomous Robots”, Sony Intelligence Dynamics Laboratory, Tokyo, Japan, July 28, 2005. Host: Prof. Masahiro Fujita.
- “Emotions in Autonomous Robots from the Perspective of Embodied AI”, Nishida Lab., Dept. of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University, Japan, July 26, 2005. Host: Prof. Toyooki Nishida.
- “Motivational and Emotional Roots of Cognition and Action: An Embodied AI Perspective”, Arts and AI seminar of the Department of Medical Cybernetics, University of Vienna and ÖFAI, Vienna, Austria, November 18, 2004. Host: Prof. Robert Trappl.
- “Une conception des émotions pour des robots autonomes”, Hôpital de La Salpêtrière, Paris, France, September 25, 2003. Hosts: Dr. Arnaud Revel and Prof. Jacqueline Nadel.
- “Modeling Affect for Adaptive Behavior.” Invited seminar, Intelligent and Interactive Systems Group, Imperial College, London, December 3, 2002. Host: Dr Yiannis Demiris.
- “How Can Emotions Make Robots more Life-like?” Invited Seminar at the Institute for Perception, Action and Behaviour, University of Edinburgh, May 28, 2002. Host: Dr. Gillian Hayes.
- “Building Life-Like Artifacts with Emotions: Does Mimicking Nature Help?” Invited seminar at the Biomimetics Research Group, University of Bath, May 15, 2002. Host: Dr. Dylan Evans.
- “First Experiments Relating Behavior Selection Architectures to Environmental Complexity”. Computer Science Research Colloquium, University of Hertfordshire, March 13, 2002. Host: Prof. Chrystopher Nehaniv.
- “Achieving Life-Like Qualities through Emotions: Some Personal Thoughts”. Seminar of the Virtual Environments and Computer Graphics Research Group, University College London (UCL), February 28, 2002. Host: Prof. Mel Slater.
- “Affective Computing: Why Modeling Emotions for Artifacts Makes Sense”. Seminar of the Adaptive Systems Research Group, University of Hertfordshire, June 5, 2001. Host: Dr Kerstin Dautenhahn.
- “Émotions et agents sociaux : un mariage réussi ?” Research Colloquium of GRAPPA (Groupe de Recherche sur l'Apprentissage Automatique), Université Charles de Gaulle – Lille-3, Lille, France, February 22, 2001. Host: Dr. Fabien Torre.
- “I Show You How I Like You: Human-Robot Interaction through Emotional Expression and Tactile Stimulation”. Artificial Intelligence Laboratory, Massachusetts Institute of Technology, Cambridge, MA, USA, November 9, 2000. Hosts: Dr Cynthia Breazeal and Prof. Rodney Brooks.
- “Building Emotions for Robots: Two case studies in action selection and human-robot interaction”. Seminar of the ETIS laboratory, ENSEA, University of Cergy-Pontoise, France, April 4, 2000. Host: Prof. Philippe Gaussier.
- “Enhancing Intelligent Behavior with Emotions: Principles, case studies, and research prospects”. Seminar of the EvaLife group, Dept. of Computer Science, University of Aarhus, Denmark, February 25, 2000. Host: Prof. Brian Mayoh.
- “Building Emotions for Robots: Two case studies in action selection and human-robot interaction”. Seminar of the Dept. of Computer Science, University of Odense, Denmark, February 16, 2000. Host: Prof. John Perram.
- “Enhancing Intelligent Behavior with Artificial Emotions”. Arts and AI seminar of the Department of Medical Cybernetics, University of Vienna, November 8, 1999. Host: Prof. Robert Trappl.
- “The role of emotions in adaptive behavior”. Weekly seminar of the OASIS group, Computer Science Laboratory, University of Paris-VI (LIP6), Paris, France, January 11, 1999. Host: Dr. Jean-Pierre Briot.
- Round table “Emotional computers: Is it possible to model emotion?” organized within the 1998 Barcelona Science Week, sponsored by the Catalan Government. Universitat Autònoma de Barcelona, Bellaterra, Spain, November 17, 1998.
- “The Society of Mind Revisited: An Architecture for Action Selection in Autonomous Agents”. Computer Science Department, Technical University of Catalonia (UPC), Barcelona, Spain, January 22, 1998. Host : Prof. Ulises Cortés.
- “Towards Emotional Intelligent Systems: Building Autonomy from the Inside Out”. Electrotechnical Laboratory (ETL), Tsukuba, Japan, March 19, 1997. Hosts: Dr. Ichiro Osawa and Prof. Hideyuki Nakashima.
- “An Experiment on Situated Cognition”. Artificial Intelligence Laboratory, Massachusetts Institute of Technology, Cambridge, MA, USA, January 31, 1996. Host: Prof. Rodney Brooks.

#### **Editorial Boards and journal reviewer**

- Member of the editorial board of the interdisciplinary journal *Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems*, John Benjamins Publishing Company, ISSN: 1572-0373, since 2003.

- Member of the editorial board of *AISB Quarterly*, publication of The Society for the Study of Artificial Intelligence and the Simulation of Behaviour, UK (<http://www.aisb.org.uk/index.html>), since December 2002.
- Reviewer of articles for other journals: *IEEE Transactions on Systems, Man and Cybernetics, Part A*; *IEEE Transactions on Systems, Man and Cybernetics, Part B*; *IEEE Transactions on Robotics*; *Adaptive Behavior*, *AISB Journal*.

## Media Coverage

A selection of national and international coverage (not local) is given below.

### *Radio and TV*

- Featured interview in REDES, high-profile science program of TVE, the National Spanish TV. Program of January 11, 2007. <http://www.rtve.es/tve/b/redes/semanal/prg418/entrevista.htm>, and <http://www.smartplanet.es/redesblog/?p=17>.
- BBC Radio 4, Leading Edge, March 1, 2007: [http://www.bbc.co.uk/radio4/science/leadingedge\\_20070301.shtml](http://www.bbc.co.uk/radio4/science/leadingedge_20070301.shtml)
- Teaching Human Emotions to Robots, Feature of March 16, 2007, British Satellite News: <http://bsn.org.uk/index.php>
- Discovery Channel Canada, Daily Planet (<http://www.discoverychannel.ca/content/?pid=183>). Filming session on April 5, 2007, to be broadcast.

### *News, newspapers and magazines*

- BBC News, February 23, 2007: <http://news.bbc.co.uk/2/hi/technology/6389105.stm>. This article was one of the main features in the front page of the International and the UK versions.
- The Times, March 3, 2007: [http://women.timesonline.co.uk/tol/life\\_and\\_style/women/body\\_and\\_soul/article1461121.ece](http://women.timesonline.co.uk/tol/life_and_style/women/body_and_soul/article1461121.ece)
- El Pais (Spain), March 4, 2007: [http://www.elpais.com/articulo/sociedad/sienten/maquinas/elpepusoc/20070304elpepusoc\\_2/Tes](http://www.elpais.com/articulo/sociedad/sienten/maquinas/elpepusoc/20070304elpepusoc_2/Tes)
- La Stampa (Italy), March 21, 2007.
- Daily Mail, March 18 2007: [http://www.dailymail.co.uk/pages/live/articles/technology/technology.html?in\\_article\\_id=443034&in\\_page\\_id=1965](http://www.dailymail.co.uk/pages/live/articles/technology/technology.html?in_article_id=443034&in_page_id=1965)
- The Independent, March 19, 2007: [http://news.independent.co.uk/world/science\\_technology/article2371613.ece](http://news.independent.co.uk/world/science_technology/article2371613.ece)
- Channel 4 News, March 19, 2007: [http://www.channel4.com/news/articles/science\\_technology/scientists+create+emotional+robot/313052](http://www.channel4.com/news/articles/science_technology/scientists+create+emotional+robot/313052)
- The Scotsman, March 19, 2007: <http://thescotsman.scotsman.com/uk.cfm?id=424042007>.

### *Websites and technical blogs*

- Endgadget, February 23, 2007: <http://www.engadget.com/2007/02/23/researchers-teaching-robots-to-read-emotional-cues-sense-our-fe/>
- Gizmodo, February 23, 2007: <http://gizmodo.com/gadgets/robots/feelix-growing-project-looking-to-build-robots-with-attitude-239123.php>
- Wikipedia entry Feelix Growing: [http://en.wikipedia.org/wiki/Feelix\\_Growing](http://en.wikipedia.org/wiki/Feelix_Growing)
- Youtube: <http://www.youtube.com/watch?v=ltNiKvf2qzY>.
- AAI news: <http://www.aaai.org/AITopics/newstopics/robot.html>  
<http://www.aaai.org/AITopics/assets/AIalerts/alert.4.12.07.html>
- IET: <http://www.iee.org/oncomms/sector/computing/SectionNews/Object/7429B0E9-EC7A-616D-3B7097CA510E2C58>

## Seminar Organization

- Since November 1998: Organizer and moderator of a multi-disciplinary mailing list comprising about 300 members (formerly [emotion@iia.csic.es](mailto:emotion@iia.csic.es), currently [emotion.list@googlemail.com](mailto:emotion.list@googlemail.com)) and a Web site (<http://homepages.feis.herts.ac.uk/~comqlc/emotion.html>) on the topic of emotion.
- 2004: organization of a reading group on the topic of Emotion within the Adaptive Systems Research Group.
- 1997: Organization of a bi-weekly reading and discussion group on the relationships between the neurosciences and AI at the VUB Artificial Intelligence Laboratory (5 months).
- October 1998 – May 1999: organization of the weekly IIIA-CSIC Research Colloquium.

## Consultancies

- 1995: EPCAD company, contract with DRET – Research Department of the French Army. Modeling and acquisition of military tactical knowledge to be integrated in a decision-support system for the infantry.

## RESEARCH INCOME AND INVOLVEMENT IN FUNDED RESEARCH PROJECTS

- **Project:** FEELIX GROWING (FEEL, Interact, eXpress: a Global approach to development With INterdisciplinary Grounding)  
**Grant awarded to:** Dr. Lola Cañamero  
**Status:** ongoing.  
**Funding source:** EU FP6-IST, 6<sup>th</sup> Call (Contract no. 045169).  
**Period:** December 2006 – May 2010 (3.5 years)  
**Amount:** 2.5 million Euro to distribute among the consortium, 670000 Euro for UH.  
**Institution:** UH  
**Role(s):** Project Coordinator, leader of two thematic workpackages, and Principal Investigator for UH.  
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- **Project:** HUMAINE (Human-Machine Interaction Network on Emotion)  
**Grant awarded to:** Dr. Lola Cañamero  
**Funding source:** EU FP6-IST (Contract no. 507422).  
**Period:** January 2004 – December 2007 (4 years)  
**Amount:** 270000 Euro for UH (5 million Euro in total).  
**Institution:** UH  
**Role(s):** Principal Investigator for UH, member of the Project Steering Board, leader of the thematic area “Emotion in Cognition and Action”.  
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- **Project:** The “New AI” Laboratory: Using real robots and simulators to teach Artificial Intelligence  
**Grant awarded to:** Dr. Lola Cañamero  
**Funding source:** Learning and Teaching Development Fund, University of Hertfordshire.  
**Period:** 12 months, starting January 2003  
**Amount:** £ 3600  
**Institution:** UH  
**Role:** Principal Investigator.  
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- **Project:** VICTEC  
**Grant awarded to:** Prof. Kerstin Dautenhahn (UH). Coordinator: Prof. Ruth Aylett, Univ. Salford, UK.

**Funding source:** EU, IST Programme of the Framework V.

**Period** March 2002 – August 2004 (30 months)

**Institution:** UH

**Role:** Member of the UH team.

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- **Project:** ASTUXE (Improving technical help-desk services through the analysis of help-request messages)

**Grant awarded to:** Dr. Claire Nédellec

**Funding source:** RNRT (French Network for Research on Telecommunication)

**Period** From: 1/11/1999 To: 31/03/2002 (joined the project in March 2000)

**Institution:** University Paris-XI

**Role:** Senior Research Fellow

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- **Project:** Emotion modeling for multi-agent adaptation and communication

**Grant awarded to:** Dr. Lola Cañamero

**Amount:** approx. £ 3000

**Funding source:** Bilateral commission CSIC (Spanish Council for Scientific Research) – CNRS (French Council for Scientific Research)

**Period** From: 1/01/2000 To: 31/12/2001 (I had to leave the project when leaving IIIA-CSIC)

**Institution:** Artificial Intelligence Research Institute (IIIA), Spanish Council for Scientific Research (CSIC)

**Role:** Principal Investigator for CSIC (P.I. for CNRS: Prof. Jean-Arcady Meyer).

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- **Project:** SMASH (Multi-Agent Systems and their Applications in Hospital Services)

**Grant awarded to:** Dr. Lluís Godo Lacasa

**Funding source:** CICYT (Spanish Commission for Science and Technology)

**Period** From: 1/08/1996 To: 31/07/2001 (I was linked to it: Aug 1998 – Feb 2000)

**Institution:** Artificial Intelligence Research Institute (IIIA), Spanish Council for Scientific Research (CSIC)

**Role:** Senior Research Fellow

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- **Project:** Knowledge Acquisition, Validation and Explanation for Knowledge-Based Systems

**Grant awarded to:** Dr. Yves Kodratoff (grant), Lola Cañamero (scholarship)

**Funding source:** Commission of the European Communities, HCM Programme

**Period** From: 1/9/1994 To: 31/7/1995

**Institution:** LRI, Université Paris-Sud (XI)

**Role:** Research Fellow

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- **Project:** SILOGISTA (*Sistema inteligente para la enseñanza de la lógica asistida por ordenador* – Intelligent tutoring system in the first-order logic domain)

**Grant awarded to:** Prof. Manuel Garrido Giménez

**Funding source:** CICYT (Spanish Commission for Science and Technology)

**Period** From: 1/19/1988 To: 31/12/1991

**Institution:** Department. of Logic, School of Philosophy, Complutense University of Madrid

**Role:** Research Assistant

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## SCHOLARSHIPS OBTAINED

- **Aug 1998: Spanish Council for Scientific Research (CSIC), Artificial Intelligence Research Institute (IIIA), Bellaterra, Barcelona, Spain.**  
Return scholarship from the Spanish Ministry of Education (MEC) for Spanish scientists with international research experience (3-year contract).
- **Jan 1997 – Aug 1997: VUB Artificial Intelligence Laboratory, Belgium.**  
Scholarship from the Spanish Ministry of Education (MEC) for postdoctoral researchers.
- **Sep 1995 – Dec 1996: MIT Artificial Intelligence Laboratory, USA.**  
Scholarship from the Spanish Ministry of Education (MEC) for postdoctoral researchers.
- **Sep 1994 – Dec 1997: European Science Foundation.**  
Junior Scientist of the European Science Foundation Research Program “Learning in Humans and Machines”.
- **Sep 1994 – Jul 1995: University Paris-XI, LRI, France.**  
Research scholarship from the Commission of the European Communities, Human Capital and Mobility Program. Project: Knowledge Acquisition, Validation and Explanation for Knowledge-Based Systems (contract ERBCHBGCT930395).
- **Jan 1990 – Dec 1992: University Paris-XI, France and Complutense University of Madrid, Spain.**  
Scholarship from the Spanish Ministry of Education (MEC) for doctoral students.
- **Oct 1992 – Jun 1992: VUB Artificial Intelligence Laboratory, Belgium.**  
Grant from the Spanish Ministry of Education (MEC) for short stays at foreign institutions.
- **Mar 1991 – Jun 1991: University Paris-XI, LRI, France.**  
Grant from the Spanish Ministry of Education (MEC) for short stays at foreign institutions.
- **Jan 1989 – Dec 1989: Complutense University of Madrid, Spain.**  
Scholarship from the Complutense University of Madrid for doctoral students.

## MEMBERSHIP OF PROFESSIONAL BODIES AND RESEARCH GROUPS

- Full member of ISRE (International Society for Research on Emotions) since March 1999. URL: <http://isre.org/prd>.
- Member of ISAB (International Society for Adaptive Behavior) since September 2000. URL: <http://adaptive-behavior.org>.
- Member of the European Science Foundation Program “Learning in Humans and Machines” (Junior Scientist), 1994-1997. The aim of this program, involving about 100 scientists from different European countries and the USA, was to investigate the main problems involved in learning from a multi-disciplinary perspective, with disciplines ranging from AI, psychology, cognitive and social sciences, and science education. It was divided in 5 sub-groups, of which I participated in the “Situated Learning and Transfer” Task Force (about 20 participants).
- Member of *GRACQ* (French Knowledge Acquisition Research Group), funded by the French Association for AI (AFCET-AFIA), 1992–1995. Participation in working groups on explanations and multi-expert knowledge acquisition.
- Member of *Groupe Explication* (SIG on Explanations for Knowledge-Based Systems), funded by the French Association for AI: PRC-IA, AFCET-AFIA, 1992–1995.

## STATEMENT ON RESEARCH

Since 1992, my research has concerned the study of the behavior of autonomous agents situated in dynamic environments, a theme that I have investigated from two different perspectives at different points in time.

During my Ph.D., I worked on the interpretation, modeling, and representation of the behavior of agents situated in highly dynamic worlds, taking as example the car driving domain. This was a case of the problem known in the AI literature as “keyhole” plan recognition, in which the observed behavior of agents must be interpreted in terms of intentions, goals and plans ascribed to them by an observer without the collaboration of the agents, i.e., exclusively on the grounds of observations and knowledge about the domain, which I represented as a hierarchy of structured prototypical plans and strategies. The difficulties posed by a classical (symbolic) AI approach to model situated behavior, such as the “frame” and “grounding” problems, led me to undertake research into situated behavior from an “embodied AI” perspective.

After my Ph.D., I thus adopted my current research paradigm to explore different aspects of embodied autonomous agents, from the perspective of both, individual agents and social interactions. My postdoctoral research project at MIT started my investigation of the notions of autonomy and adaptation in architectures for action selection based on a repertoire of behaviors and internal motivations (survival-related drives), that implemented a part of Marvin Minsky’s *Society of Mind* from an embodied AI perspective. Later on, taking inspiration from neurobiology, I added emotions to this architecture as a second-level control mechanism that modulates and changes motivational priorities, favoring faster responses to meet the demands of a highly dynamic environment (e.g., dangers, unexpected events, inefficient behaviors). By adding emotions, my aim was to increase the level of autonomy of the agents. Emotions allow to go not only beyond pure reactivity, as internal motivations do, but also to go beyond the control of behavior by pure drives, permitting richer, more flexible and adaptive behavior. My research project at the VUB extended this architecture for multi-agent interaction, adding emotional displays to allow agents recognize other agents’ emotional states and negotiate interactions on their grounds. Since then, I have been pursuing two main lines. One is emotion modeling in social settings, in particular in human-computer and human-robot interaction, examples of which are my participation on a project for the generation of expressive music at the IIIA-CSIC, and the work on expressive robots for emotional interaction with humans that I started in Denmark and continued developing in collaboration with psychologists and roboticists in France. The other, explored largely in collaboration with my research students, is the study of the roles that motivational and emotional phenomena play as mechanisms for adaptation to dynamic environments in autonomous agents (particularly robots) at different time scales: in short-term decision making (action selection), in ontogenesis (autonomous learning and development), and phylogenetically (evolution of affective displays and behavioral strategies).

On the international scene, I have contributed to the advancement of research on emotions in several ways. First, my model initiated research on emotion at the MIT AI-Lab, where closely related models were later implemented in different robotic projects; it has also given rise to a number of re-implementations and derivatives at other places (e.g. in Aaron Sloman’s group, Steve Allen’s Ph.D. thesis re-implemented the micro-world and architecture I developed at MIT from a more cognitive perspective; several models by Matthias Scheutz in the US, etc). I have also been very active in community-building activities, as the growing interest in this domain led me to organize numerous international events and editorial projects on the topic (workshops, special journal issues, various edited collections, a mailing list and web site). Finally, I am also very active in research coordination, for example through my role as coordinator of the thematic area “Emotion in Cognition and Action” within the EU-funded FP6-IST Network of Excellence HUMAINE.

At present, and for my future research, I am developing two main lines. Firstly, to continue developing my model of emotion synthesis using hormonal modulation of decision making architectures, applied to both robots and simulations. The central concern of this theme is a systematic bottom-up investigation of the role of emotions in the modulation of adaptive behavior, as well as their effects in other cognitive phenomena such as memory and learning. Secondly, to investigate the roles of emotions in social interactions using computers and robots, in situations of human-artifact, artifact-artifact, and artifact-mediated human-human interaction. Concerning this point, I am particularly interested in three aspects: emotion expression and recognition, emotions in non-verbal communication, and the influence of emotions in the development of social cognition.

## 4. Teaching Experience

### *(a) Courses taught<sup>1</sup>*

- 2006/2007: School of Computer Science, UH.
  - Natural Computation and Robotics (3<sup>rd</sup> year module), module on Adaptive Behavior; 8 weeks of lectures and tutorials, (Semester B).
  - Embodied AI, Cognition, and Robotics (3<sup>rd</sup> year module); 8 weeks of lectures, tutorials and practicals (Semester B). Course leader.
- 2005/2006: School of Computer Science, UH.
  - Natural Computation and Robotics (3<sup>rd</sup> year module), module on Adaptive Behavior; 8 weeks of lectures and tutorials, (Semester B).
  - Embodied AI, Cognition, and Robotics (3<sup>rd</sup> year module); 8 weeks of lectures, tutorials and practicals (Semester B). Course leader.
- 2004/2005: School of Computer Science, UH.
  - Artificial Intelligence Theory and Applications (3<sup>rd</sup> year module), module on Embodied AI; 10 weeks of lectures and tutorials, (Semester B).
  - Embodied AI, Cognition, and Robotics (3<sup>rd</sup> year module); 8 weeks of lectures, tutorials and practicals (Semester B). Course leader.
- 2003/2004: Department of Computer Science, UH.
  - Artificial Intelligence Theory and Applications (3<sup>rd</sup> year module), module on Embodied AI; 12 weeks of lectures, tutorials and practicals, (Semester B).
  - Embodied AI, Cognition, and Robotics (3<sup>rd</sup> year module); lectures, tutorials and practicals (Semester B). Course leader.
- 2002/2003: Department of Computer Science, UH.
  - Artificial Intelligence Theory and Applications (3<sup>rd</sup> year module), module on Embodied AI; 10 weeks of lectures, tutorials and practicals, (Semesters A and B).
  - Embodied AI, Cognition, and Robotics (3<sup>rd</sup> year module); lectures, tutorials and practicals (Semester B). Course leader.
- 2001/2002: Department of Computer Science, UH (381 hours).
  - Semester A: Artificial Intelligence and Neural Networks (module on Search; 6 weeks of lectures, tutorials and practicals), Knowledge Engineering (module on Knowledge Elicitation; 6 weeks of lectures, tutorials and practicals), Programming (tutorials and practicals).
  - Semester B: Artificial Intelligence Theory and Applications (module on Embodied AI; 6 weeks of lectures, tutorials and practicals), Programming (tutorials and practicals)..
- 2000/2001: lectures on information extraction from texts (10 hours lectures and tutorials) for the Master Program “Human-Machine Communication”. LRI, University Paris-XI, France.
- 1999/2000: Semester B: Autonomous Agents (lectures and practicals on Adaptive Systems, 20 hours). Postgraduate course. Department of Computer Science (LSI), Technical University of Catalonia (UPC), Barcelona, Spain.
- 1998/1999: Dept. of Computer Science (LSI), Technical University of Catalonia (UPC), Barcelona, Spain:
  - Semester A: Introduction to Algorithms and Data Structures (28 hours lectures). Undergraduate course (1<sup>st</sup> year engineering students). EUPM, LSI, Technical University of Catalonia (UPC), Spain.
  - Semester A: Introduction to Programming (lectures and practicals: 84 hours). Undergraduate course (1<sup>st</sup> year engineering students). EUPM, LSI, Technical University of Catalonia (UPC), Spain.

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<sup>1</sup> Teaching hours given for courses taught in France and Spain indicate class contact time only (i.e. time actually spent in delivering lectures, tutorials and practicals), as this is the way teaching loads are allocated in those countries.

- Semester B: Autonomous Agents (lectures and practicals on Adaptive Systems, 20 hours). Postgraduate course. Dept. of Computer Science (LSI), Technical University of Catalonia (UPC), Barcelona, Spain.
- 1994: France
  - Expert Systems (lectures on Knowledge Acquisition and Explanations, 6 hours). Undergraduate course (3<sup>rd</sup> year). Ecole Nationale Supérieure de Techniques Avancées (ENSTA), Paris, France.
  - AI Programming in LISP (tutorials and practicals, 30 hours). Undergraduate course (3<sup>rd</sup> year). Ecole Nationale Supérieure de Techniques Avancées (ENSTA), Paris, France.
  - Artificial Intelligence (lectures on Knowledge Acquisition, 3 hours). Undergraduate course (3<sup>rd</sup> year). Ecole Supérieure d'Informatique, d'Electronique et d'Automatique (ESIEA), Paris, France.
- 1989/1990: Department of Logic, Universidad Complutense de Madrid, Spain:
  - Semester A: Mathematical Logic (tutorials and practicals, 15 hours) for first-year BA students of the School of Psychology (*Licenciatura* in Psychology). Responsible to: Prof. Lucila González.
  - Semesters A and B: Introduction to Prolog Programming (lectures, tutorials and practicals, 35 hours) for second-year BA students of the School of Philosophy (*Licenciatura* in Philosophy). Responsible to: Prof. Manuel Garrido.
  - Semester B: Writing AI applications in Prolog (lectures, tutorials and practicals, 30 hours) for fifth-year BA students of the School of Philosophy (*Licenciatura* in Philosophy). Responsible to: Prof. Manuel Garrido.
- 1988/1989: Department of Logic, School of Philosophy, Universidad Complutense de Madrid, Spain:
  - Semesters A and B: Introduction to Prolog Programming (lectures and practicals, 50 hours) for first-year BA students (*Licenciatura* in Philosophy). Responsible to: Prof. Carmen García-Trevijano.
  - Semester B: Writing AI applications in Prolog (lectures and practicals, 30 hours) for fifth-year BA students (*Licenciatura* in Philosophy). Responsible to: Prof. Manuel Garrido.

*(b) Undergraduate, master and international student projects supervised*

- 2005 – 2006: Tutor for 5 final-year specialist projects (80 hours) and supervision of 7 MSc projects (115 hours).
- 2004 – 2005: Tutor for 5 final-year specialist projects (80 hours) and supervision of 8 MSc projects (160 hours).
- 2003 – 2004:
  - Tutor for 5 final-year specialist projects (80 hours).
  - Supervision of 8 MSc projects (160 hours).
  - Semester B: Supervision of the MSc (French DEA) project of Ludovic Létolle, visiting (research) student from the university Pierre et Marie Curie, Paris, France.
- 2002 – 2003:
  - Supervision of the final year project of Ivan Bethencourt, Socrates student from University of La Laguna, Spain (semesters A and B).
  - Tutor for 10 final-year specialist projects (120 hours).
  - Supervision of 10 MSc projects (150 hours).
- 2001 – 2002:
  - Semester A: supervision of the final year projects of Orlando Avila and Elena Hafner, Socrates students from University of La Laguna, Spain.
  - Semester B: supervision (jointly with Kerstin Dautenhahn) of the final year project of Marcos García-Padrón and Oscar Martínez-Valpuesta, Socrates students from University of La Laguna, Spain.
  - Tutor for 10 final-year specialist projects (140 hours).
  - Supervision of 3 MSc projects over the Summer term.

- 1999 – 2000: supervision of the graduation project (for a BSc degree in Computer Science) of Pedro González, Computer Science Engineering School, Autonomous University of Barcelona (UAB), Spain. Project on a Java Interface for an autonomous agents' micro-world, defended June 2000.
- 1992/1993: co-supervision (with Yves Kodratoff) of the graduation project (*stage de magistère MIAIS*) of Thomas Jamet at LRI, University of Paris-XI, France. Work on a module for the generation of explanations in a plan recognition system (4-month project).

## 5. Publications

### JOURNALS

- 1) Blanchard, A. and Cañamero (2007), L. Développement de “liens affectifs” pour moduler l’exploration et l’imitation d’un robot, *Enfance*, special issue “L’enfant, le robot et l’ordinateur”, 1/2007: 35-45.
- 2) Cañamero, L. (2006). Did Garbo Care about the Uncanny Valley? Commentary to K.F. MacDorman and H. Ishiguro, “The uncanny advantage of using androids in cognitive and social science research”, *Interaction Studies*, 7(3):355-359. ISSN: 1572-0373.
- 3) Cañamero, L., Blanchard, A., Nadel, J. (2006). Attachment Bonds for Human-Like Robots. *International Journal of Humanoid Robotics*, 3(3): 301-320. ISSN: 0219-8436.
- 4) Cañamero, L. (2005). Emotion Understanding from the Perspective of Autonomous Robots Research. *Neural Networks*, 18: 445-455. ISSN: 0893-6080.
- 5) Cortés, U., Annicchiarico, R., Campana, F., Vázquez-Salceda, J., Urdiales, C., Cañamero, L., López, M., Sánchez-Marrè, M., Di Vincenzo, S., and Caltagirone, C. (2004). Intelligenza artificiale in medicina: progetto di una piattaforma mobile inserita in un ambiente intelligente per l’assistenza ai disabili e agli anziani. *Recenti Progressi in Medicina*, 95(4): 190-195.
- 6) Cortés, U., Annicchiarico, R., Vázquez-Salceda, J., Urdiales, C., Cañamero, L., López, M., Sánchez-Marrè, M. And Caltagirone, C. (2003). Assistive technologies for the disabled and for the new generation of senior citizens: The *e-Tools* architecture. *AI Communications*, 16: 193–207. ISSN: 0921-7126.
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