ECAL 2007

9th European Conference on Artificial Life

September 10-14, 2007

Lisbon, Portugal

Hosted by
Gulbenkian Institute of Science

Venue
Belém Cultural Center

www.ecal2007.org

Conference Overview

ECAL, European Conference on Artificial Life, is the world's biggest conference in the Artificial Life field and takes place every two years since 1991. The previous editions were held in Brussels (1991), Paris (1993), Granada (1995), Brighton (1997), Lausanne (1999), Prague (2001), Dortmund (2003) and Canterbury (2005). The *European*, in **ECAL,** merely refers to the conference location, but participation is worldwide. In this ECAL we envisage maintaining and enlarging this worldwide scope and want to emphatically encourage novelty and daring ideas, particularly amongst young researchers. A diversity of parallel open events will be promoted in venues throughout the city of Lisbon, aimed at communicating A Life ideas, and the scientific practice and consequences, to a broader audience. A further focus will be the involvement of industry. Relevant space and time will be allocated to the presentation of demos.

ECAL2007 will take place in a splendidly situated, historic location of Lisbon and will comprise a one track main session, several workshops, tutorials and associated events. ECAL2007 was awarded the status of Event of Scientific Interest by the Portuguese Presidency of the European Union 2007.

PORTUGAL 2007

Portuguese Presidency of the European Union 2007
ECAL2007: Event of scientific interest

Program

Public associated events, including an a-life music concert and an a-life art exhibition, and smaller events aimed at the broader public will be held in association with Ciência Viva Program, of the Ministry of Science.

TUESDAY, 11 - COGNITION AND EMBODIMENT

• Measuring Autonomy by Multivariate Autoregressive Modelling	Anil Seth
• Evolving Virtual Neuronal Morphologies: a case study in Genetic L-Systems Programming	Benjamin Torben-Nielsen
• Feathered Flyer: Integrating Morphological Computation and Sensory Reflexes into a Physically Simulated Flapping-Wing Robot for Robust Flight Manoeuvre	YoonSik Shim, Phil Husbands
• An Analysis of Behavioral Attractor Dynamics	Alberto Montebelli, Carlos Herrera, Tom Ziemke
• Guided Self-organisation for Autonomous Robot Development	Georg Martius, J. Michael Herrmann, Ralf Der
• The Dynamics of Associative Learning in an Evolved Situated Agent	Eduardo Izquierdo, Inman Harvey
• Improving Agent Localisation Through Stereotypical Motion	Bart Baddeley, Andrew Philippides
• Near-Optimal Mobile Robot Recharging With The Rate-Maximizing Forager	Jens Wawerla, Richard Vaughan
• Evolution of Neural Networks for Active Control of Tethered Airfoils	Allister Furey, Inman Harvey
• Adapting to Your Body	Peter Fine, Ezequiel Di Paolo, Eduardo Izquierdo
• New Models for Old Questions: Evolutionary Robotics and the 'A not B' error	Rachel Wood, Ezequiel Di Paolo
• Synthesizing Physically-Realistic Environmental Models from Robot Exploration	Josh Bongard

WEDNESDAY, 12 - COMPLEX SYSTEMS AND NETWORKS

• Evolution of One-dimensional Cellular Automata by 1/f Noise	Shigeru Ninagawa
• Multi-Level Selection in the Emergence of Language Systematicity	Luc Steels, Remi van Trijp, Pieter Wellens
• Networks regulating networks: The effects of constraints on topological evolution	Francisco C. Santos, Hugues Bersini, Tom Lenaerts
• Information-Cloning of Scale-free Networks	Mahendra Piraveenan, Mikhail Prokopenko, Albert Zomaya
• A Computational System for Investigating Chemotaxis-Based Cell Aggregation	Manolya Eyiyurekli, Peter Lelkes, David Breen
• Developmental Neural Heterogeneity through Coarse-Coding Regulation	Jekanthan Thangavelautham, Gabriele M.T. D'Eleuterio
• Multi-Level Selectional Stalemate in a Simple Artificial Chemistry	Barry McMullin, Ciaran Kelly, Darragh O'Brien
• Spatial Embedding and Complexity: The Small-World is Not Enough	Christopher L. Buckley, Seth Bullock
• Formulating Membrane Dynamics with the Reaction of Surface Objects	Kazuto Tominaga, Tooru Watanabe, Maki Suzuki
• Simulation Model for Functionalized Vesicles: Lipid-Peptide Integration in Minimal Protocells	Kepa Ruiz-Mirazo, Fabio Mavelli

THURSDAY, 13 - COMMUNICATION AND SOCIAL SYSTEMS

• Evolutionary Dilemmas in a Social Network	Leslie Luthi, Enea Pestalacci, Marco Tomassini
• Group size effects on the emergence of compositional structures in language	Paul Vogt
• From the Outside-In: Embodied Attention in Toddlers	Linda Smith, Chen Yu, Alfredo Pereira
• A Multi-Level Selection Model for the Emergence of Social Norms	Francisco C. Santos, Fabio A. C. C. Chalub, Jorge M. Pacheco
• From Solitary to Collective Behaviours: Decision Making and Cooperation	Vito Trianni, Christos Ampatzis, Anders Lyhne Christensen, Elio Tuci, Marco Dorigo, Stefano Nolfi
• Evolution of Acoustic Communication Between Two Cooperating Robots	Elio Tuci, Christos Ampatzis
• Community Detection in Complex Networks using Collaborative Evolutionary Algorithms	Anca Gog, D. Dumitrescu, Béat Hirsbrunner
• Efficient Multi-Foraging in Swarm Robotics	Alexandre Campo, Marco Dorigo
• The role of collective reproduction in evolution	John Bryden
• Exogenous Fault Detection in a Collective Robotic Task	Anders Lyhne Christensen, Rehan O'Grady, Mauro Birattari, Marco Dorigo
• Social Facilitation on the Development of Foraging Behaviors in a Population of Autonomous Robots	Alberto Acerbi, Davide Marocco, Stefano Nolfi
• Individual Selection for Cooperative Group Formation	Simon Powers, Alexandra Penn, Richard Watson

FRIDAY, 14 - ALIFE, BIOLOGY AND OPEN ISSUES

• Increasing complexity can increase stability in a self-regulating ecosystem	James Dyke, Jamie McDonald-Gibson, Ezequiel Di-Paolo, Inman Harvey
• Niche Differentiation and Coexistence in a Multi-Resource Ecosystem with Competition	Walter de Back, László Guylás, George Kampis
• Comparing ACO Algorithms for Solving the Bi-Criteria Military Pathfinding Problem	Antonio Mora, Juan Julián Merelo, Cristian Millán, Juan Torrecillas, Juan Luís Jiménez Laredo, Pedro A. Castillo
• Entropy Production in Ecosystems	Nathaniel Virgo, Inman Harvey

Another 82 papers were accepted for poster presentations. To consult titles and authors visit www.ecal2007.org

Papers accepted for Posters

- **Self-organizing Systems Based on Bio-inspired Properties**
  André Stauffer, Daniel Mange, Joël Rossier
- **Category Theoretical Distinction between Autopoiesis and (M,R) Systems**
  Tatsuya Nomura
- **Genotype Reuse More Important than Genotype Size in Evolvability of Embodied Neural Networks**
  Chad Seys, Randall Beer
- **Modeling Decentralized Organizational Change in Honeybee Societies**
  Mark Hoogendoorn, Martijn Schut, Jan Treur
- **Designing a Methodology to Estimate Complexity of Protein Structures**
  Alejandro Balbín, Eugenio Andrade
- **Robotic Superstrings Installation: A-Life Science & Art**
  Mauro Francaviglia, Marcella G. Lorenzi, Michael Petry
- **From the Outside-In: Embodied Attention in Toddlers**
  Carlos Delgado Mata, Ruth Aylett
- **Detecting non-trivial computation in complex dynamics**
  Joseph Lizier, Mikhail Prokopenko, Albert Zomaya
- **Institutional Robotics**
  Porfírio Silva, Pedro Lima
- **Turing Complete Catalytic Particle Computers**
  Anthony M.L. Liekens, Chrisantha T. Fernando
- **Construction of Hypercycles in Typogenetics with Evolutionary Algorithms**
  Kyubum Wee, Chohwa Gwak
- **The evolution of pain**
  Alberto Acerbi, Domenico Parisi
- **Evolution of cooperation in a population of selfish adaptive agents**
  Jorge M. Pacheco, Tom Lenaerts, Francisco C. Santos
- **Cell Tracking, genesis and epigenesis in an artificial organism**
  Alessandro Fontana
- **Re-examination of Swimming Motion of Virtually Evolved Creature Based on Fluid Dynamics**
  Yoshiyuki Usami
- **Semi-Synchronous Activation in Scale-Free Boolean Networks**
  Christian Darabos, Mario Giacobini, Marco Tomassini
- **Modelling the Effects of Colony Age on the Foraging Behaviour of Harvester Ants**
  Tom Diethe, Peter Bentley
- **A Computational Morphogenesis Approach to Simple Structure Development**
  Enrique Fernández-Blanco, Julián Dorado, Juan R. Rabuñal, Marcos Gestal, Nieves Pedreira
- **Simulation of the evolution of aging: effects of aggression and kin-recognition**
  Svetlana Krivenko, Mikhail Burtsev
- **Energy Flows and Maximum Power on an Evolutionary Ecological Network Model**
  Jiang Zhang
- **Asynchronous Graph-rewriting Automata and Simulation of Synchronous Execution**
  Kohji Tomita, Satoshi Murata, Haruhisa Kurokawa
- **Emergence of Genetic Coding: an Information-theoretic Model**
  Mahendra Piraveenan, Daniel Polani, Mikhail Prokopenko
- **A Signal Based Approach to Artificial Agent Modeling**
  Luís Morgado, Graça Gaspar
- **Autonomy: a review and a reappraisal**
  Tom Froese, Nathaniel Virgo, Eduardo Izquierdo
- **Protolanguages that are Semi-Holophrastic**
  Mike Dowman
- **Minimal Agency Detection of Embodied Agents**
  Hiroyuki Iizuka, Ezequiel Di Paolo
- **Building Virtual Ecosystems from Artificial Chemistry**
  Alan Dorin, Kevin Korb
- **Emergent Phenomena only belong to Biology**
  Hugues Bersini, Christophe Philemotte
- **A Behavior-Based Model of the Hydra, Phylum Cnidaria**
  Malin Aktius, Mats Nordahl, Tom Ziemke
- **Plazzmid: An evolutionary agent-based architecture inspired by bacteria and bees**
  Susan Stepney, Tim Clarke, Peter Young
- **Artificial ecosystem selection for evolutionary optimisation**
  Hywel Williams, Tim Lenton
- **Neutral Emergence and Coarse Graining**
  Andrew Weeks, Susan Stepney, Fiona Polack
- **Folding Protein-Like Structures with Open L-systems**
  Gemma Danks, Susan Stepney, Leo Caves
- **Aging in Artificial Learning Systems**
  Sarunas Raudys
- **Investigating the Emergence of Phenotypic Plasticity in Evolving Digital Organisms**
  Jeff Clune, Charles Ofria, Robert T. Pennock
- **Self-organizing acoustic categories in sensor arrays**
  Iván Escobar, Erika Vilches, Edgar E. Vallejo, Martin L. Cody, Charles E. Taylor
- **Neuro-Evolution Methods for Designing Emergent Specialization**
  Geoff Nitschke
- **The application of the idea of Extended Cellular Automata for some pedestrian behaviours**
  Ewa Dudek-Dyduch, Jaroslaw Was, Bartlomiej Gudowski
- **Adaptation to Sensory Delays. An Evolutionary Robotics Model of an Empirical Study**
  Marieke Rohde, Ezequiel Di Paolo
- **Embodied evolution and learning: The neglected timing of maturation**
  Steffen Wischmann, Kristin Stamm, Florentin Woergoetter
- **Program Evolvability under Environmental Variations and Neutrality**
  Tina Yu
- **Social Impact Theory based Optimizer**
  Martin Macas, Lenka Lhotska
- **Where did I put my glasses? Determining trustfulness of records in episodic memory by means of an associative network**
  Cyril Brom, Klara Peskova, Jiri Lukavsky
- **On the Adaptive Disadvantage of Lamarckianism in Rapidly Changing Environments**
  Ingo Paenke, Bernhard Sendhoff, Jon Rowe, Chrisantha Fernando
- **Evolution and Learning in an Intrinsically Motivated Reinforcement Learning Robot**
  Massimiliano Schembri, Marco Mirolli, Gianluca Baldassarre
- **Variance in Water Temperature as a factor in the modelling of Starfish and Mussel population density and diversity**
  David White
- **Measuring Entropy in Embodied Neural Agents with Homeostasic Units: A Link between Complexity and Cybernetics**
  Jorge Simão
- **Designing for Surprise**
  Telmo Menezes, Ernesto Costa
- **Artificial Emotions: Are we ready for them?**
  Jackeline Freitas, João Queiroz
- **Wavelet Network with Hybrid Algorithm to Linearize High Power Amplifiers**
  Nibaldo Rodriguez, Claudio Cubillos
- **The Creativity Potential within Evolutionary Algorithms**
  David Iclanzan
- **Preliminary Investigations on the Evolvability of a Non-Spatial GasNet Model**
  Patricia A. Vargas, Ezequiel A. Di Paolo, Phil Husbands
- **Evolution of an Adaptive Sleep Response in Digital Organisms**
  Benjamin Beckmann, Philip McKinley, Charles Ofria
- **Improving Search Efficiency in the Action Space of an Instance-Based Reinforcement Learning Technique for Multi-Robot Systems**
  Toshiyuki Yasuda, Kazuhiro Ohkura
- **Language Learning Dynamics: Coexistence and Selection of Grammars**
  Valery Tereshko
- **Decentralized Control and Interactive Design Methods for Large-Scale Heterogeneous Self-Organizing Swarms**
  Hiroki Sayama
- **Directed Evolution of Communication and Cooperation in Digital Organisms**
  David Knoester, Philip McKinley, Benjamin Beckmann, Charles Ofria
- **ALife and Pecking: Applying the Comparative Cognitive Robotics Framework to Chicken Intelligence**
  Roul Sebastian John, Ulas Türkmen, Radomir Zugic, Christian W. Werner
- **Grounding Action-Selection in Event-Based Anticipation**
  Philippe Capdepuy, Daniel Polani, Chrystopher Nehaniv
- **MBEANN: Mutation-Based Evolving Artificial Neural Networks**
  Kazuhiro Ohkura, Toshiyuki Yasuda, Yuichi Kawamatsu, Yoshiyuki Matsumura, Kanji Ueda
- **Simulations of simulations in evolutionary robotics**
  Edgar Bermudez Contreras, Anil K. Seth
- **An Analysis of the Effects of Lifetime Learning on Population Fitness and Diversity in an NK fitness landscape**
  Dara Curran, Colm O'Riordan, Humphrey Sorensen
- **Evolving Cultural Learning Parameters in an NK Fitness Landscape**
  Dara Curran, Colm O'Riordan, Humphrey Sorensen
- **Investigating the Evolution of Cooperative Behaviour in a Minimally Spatial Model**
  Simon Powers, Richard Watson
- **Chemical Organizations at Different Spatial Scales**
  Pietro Speroni di Fenizio, Peter Dittrich
- **Stepwise Transition from Direct Encoding to Artificial Ontogeny in Neuroevolution**
  Benjamin Inden
- **From artificial societies to new social science theory**
  Eric Silverman, John Bryden
- **Transients of Active Tracking: a stroll in atractor spaces**
  Mario Negrello, Frank Pasemann
- **Binocular Vision-Based Robot Control with Active Hand-Eye Coordination**
  Wen-Chung Chang
- **EcoPS – a Model of Group-Foraging with Particle Swarm Systems**
  Cecilia Di Chio, Paolo Di Chio
- **A Mechanism to Self-Assemble Patterns with Autonomous Robots**
  Anders Lyhne Christensen, Rehan O'Grady, Marco Dorigo
- **Neuroevolution of Agents Capable of Reactive and Deliberative Behaviours in Novel and Dynamic Environments**
  Edward Robinson, Timothy Ellis, Alastair Channon
- **Controlling an Anthropomimetic Robot: A Preliminary Investigation**
  Hugo Marques, Richard Newcombe, Owen Holland
- **The Problems With Counting Ancestors in a Simple Genetic Algorithm**
  Robert Collier, Mark Wineberg
- **Hermeneutic Resonance in Animats and Art**
  Alasdair Turner
- **How does niche construction reverse the Baldwin effect?**
  Hajime Yamauchi
- **Constructing the Basic Umwelt of Artificial Agents: An Information-Theoretic Approach**
  Philippe Capdepuy, Daniel Polani, Chrystopher Nehaniv
- **Symbiosis, Synergy and Modularity: Introducing the Reciprocal Synergy Symbiosis Algorithm**
  Rob Mills, Richard A. Watson
- **Formal Model of Embodiment on Abstract Systems: from Hierarchy to Heterarchy**
  Kohei Nakajima, Soya Shinkai, Takashi Ikegami
- **A distributed formation algorithm to organize agents with no coordinate agreement**
  Gregory Studer, Inman Harvey
- **Neural Uncertainty and Sensorimotor Robustness**
  Jose A. Fernandez-Leon, Ezequiel A. Di Paolo
- **Catalysis by Self-Assembled Structures in Emergent Reaction Networks**
  Gianluca Gazzola, Andrew Buchanan, Norman Packard, Mark Bedau

WORKSHOPS

- **Complex Adaptive Economic Systems**
  Chairs: Seth Bulock, Dave Cliff, Dan Ladley
- **Dynamical Approaches to Development: beyond the metaphor**
  Chairs: Alfredo Pereira, Adam Sheya, Rachel Wood
- **The Emergence of Social Behaviour: from cooperation to language**
  Chairs: Markus Waibel, Sara Mitri, Julien Hubert, Danesh Tarapor
- **Evolution and Dynamics of Learning**
  Chairs: Eldan Goldenberg and Eduardo Izquierdo-Torres
- **Extending the Darwinian Framework: new levels of selection and inheritance**
  Chairs: Alexandra Penn, Hywel Williams, Crisantha Fernando
- **Music-AL**
  Chairs: Eduardo Reck Miranda, João Martins, Qijun Zhang
- **Neuromodulation: understanding networks embedded in space and time**
  Chairs: Chris Buckley, Seth Bullock, Andrew Philippides
- **Social Learning in Embodied Agents**
  Chairs: Alberto Acerbi, Davide Marocco, Paul Vogt

TUTORIALS

- **Simulation of Collective Intelligence (SCI)**
  Organizer: Martijn Schut
- **Emergent Control in Embodied-Situated Agents using Recurrent Neural Networks (ECESA)**
  Organizer: Jorge Simão
- **Liquid and Reaction Theory for Artificial Chemistry (LRTAC)**
  Organizer: Hideaki Susuki
- **Daisyworld. Exploring the mechanisms of planetary homeostasis (DEMPH)**
  Organizers: James Dyke and Inman Harvey
  [As an extension of the associated event Daisyworld & MEPP]

Associated events

- **International Alife Art Exhibition and special workshop on Alife Art.** Visit the ECAL2007 website for more information. Contact: alifeart@ecal2007.org
- **Alife Music Concert to be held in association with ECAL2007, as part of the Musica Viva Festival.** The concert is organized by the ECAL2007 Music-AI Workshop.
- **Workshops, taks and demos for the general public,** in collaboration with the Ciencia Viva Program from the Portuguese Ministry of Science and Technology
- **Workshop Daisyworld & MEPP.** Two days: 8th and 9th. As an extension of this workshop a tutorial will be held on the 10th.
- **Workshop Dynamical Approaches to Development: beyond the metaphor.** Two days: 9th and 10th. The session on the 10th is part of the workshops day.

A-Life Art Exhibition at ECAL 2007

Under the umbrella of **ECAL2007** this associated A-Life Art Exhibition will showcase a series of artificial life and robotics art installations, as well other biotechnological artwork. The creative strategies inherent to such artworks often employ techniques such as evolutionary algorithms or cellular automata, while developments in "wet biology" neurosciences and nanotechnology offer artists an ever expanding scope of creative possibilities to exploit art forms inspired by living systems. The featured artists line-up includes(*) Ken Rinaldo, Paul Brown, Druessens & Verstappen and Alan Dorin amongst others. If you wish to get involved you can contact the curatorial team directly by emailing **alifeart@ecal2007.org**

** some confirmations pending*

Keynote Speakers

Brian Goodwin, Schumacher College
Talk title T.B.A.

Rudolf Bannasch, Technical University Berlin
Morphological intelligence in bionic applications

Randall D. Beer, Indiana University
The Dynamics of Brain-Body-Environment Systems: A Status Report

Antonio Coutinho, Institute Gulbenkian of Science
Talk title T.B.A.

Ezequiel Di Paolo, University of Sussex
Escape from pervasive individualism: Why should embodied cognition seriously study the collective dynamics of social interaction?

Dario Floreano, Laboratory of Intelligent Systems, EPFL
Evolution of altruistic cooperation and communication in robot societies

Peter Todd, Indiana University
Minding the Environment in Simulations of Cognition

Ricard Solé, Complex Systems Lab, Universitat Pompeu Fabra
Synthetic Protocell Biology: from Reproduction to Computation

Janet Wiles, The University of Queensland
Complex Systems from DNA to development

Panel Discussions:

- **Cognition, Morphodynamics & Information: a critical reappraisal.**
  Discussants: Takashi Ikegami, Josh Bongard, Dario Floreano, Randall D. Beer and Rudolf Bannasch.
- **Complex Systems and Networks**
  Discussants: Antonio Coutinho, Janet Wiles, more T.B.A.
- **Cognition and collective behaviour**
  Discussants: Seth Bullock, Peter Todd, Ezequiel Di Paolo, another discussant. More T.B.A.
- **The relation Artificial Life-Biology: the present and the foreseeable future** (special session: Talk by Brian Goodwin followed by panel discussion)
  Discussants: Ricard Solé, Brian Goodwin, others T.B.A.

Sponsored by

FCT
Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

TAP PORTUGAL

Applied AI Systems, Inc.
112 John Cavanaugh Dr., Ottawa
Ontario, Canada K0A 1L0
E-Mail: info@AAI.ca
URL: http://www.AAI.ca

FLAD
Computational Biology Collaboratorium

Organizing Committee:

- Fernando Almeida e Costa (Chair) - University of Sussex
- Luis Mateus Rocha - Indiana University
- Ernesto Costa - University of Coimbra
- Inman Harvey - University of Sussex
- Antonio Coutinho – Gulbenkian Science Institute

Program Committee:

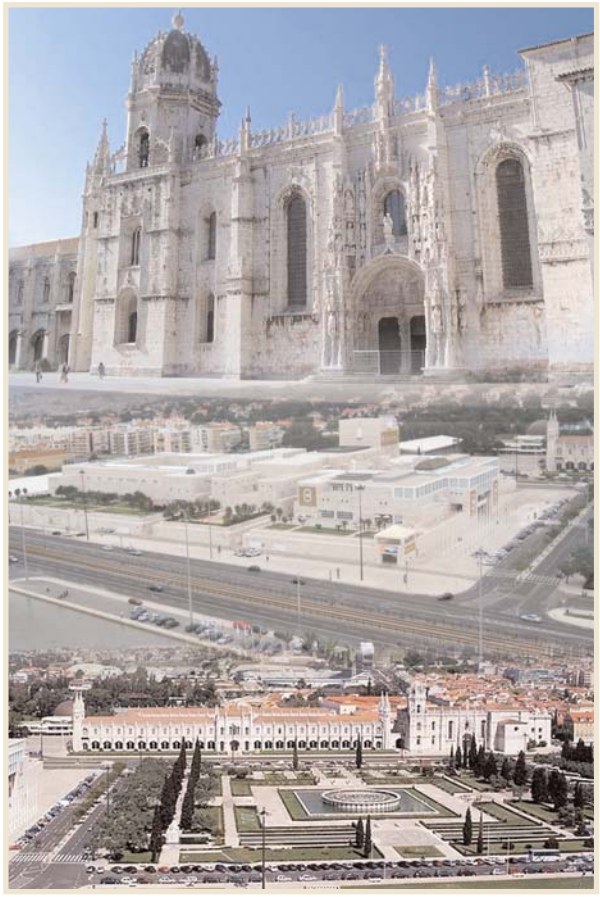
Chris Adami
Fernando Almeida e Costa
Wolfgang Banzhaf
Mark Bedau
Randall Beer
Peter J. Bentley
Luc Berthouze
Hugues Bersini
Eric Bonabeau
Josh Bongard
Seth Bullock
Mathieu Capcarrere
Peter Cariani
Jorge Carneiro
Leandro Nunes de Castro
Thomas Christaller
Helder Coelho
Netta Cohen
Luís Correia
Ernesto Costa
António Coutinho
Luís Custódio
Kyran Dale
Kerstin Dautenhahn
Bart de Boer
Edwin de Jong
Yiannis Demiris
Ralf Der
Ezequiel Di Paolo
Peter Dittrich
Marco Dorigo
Arantza Etxeberria
Dario Floreano
Carlos Gershenson
Takashi Gomi
Paul Graham
Benoit Hardy-Vallée
Inman Harvey
Phil Husbands
Fumiya Iida
Auke Jan Ijspeert
Takashi Ikegami
Eduardo Izquierdo-Torres
Colin G. Johnson
Jozef Kelemen
Jeffrey Krichmar
Tim Lenton
Pedro Lima
Hod Lipson
Fernando Lobo
Luís Seabra Lopes
Max Lungarella
Ian Macinnes
Davide Marocco
Barry McMullin
José Fernando Mendes
Jean-Arcady Meyer
Eduardo Reck Miranda
Melanie Mitchell
Luís Moniz Pereira
Federico Morán
Alvaro Moreno
Chrystopher Nehaniv
Stefano Nolfi
Alexandra Penn
Alfredo Pereira
Andrés Pérez-Uribe
Rolf Pfeifer
Andrew Philippides
Daniel Polani
Vitorino Ramos
Steen Rasmussen
Luis Mateus Rocha
Miguel Rocha
Agostinho Rosa
Kepa Ruiz-Mirazo
João Sentieiro
Anil Seth
Cosma Shalizi
Linda Smith
Ricard Solé
Emmet Spier
Olaf Sporns
Susan Stepney
Jun Tani
Charles Taylor
Tim Taylor
Adrian Thompson
Jon Timmis
Peter Todd
Elio Tuci
Jon Umerez
Patrícia Vargas
Robert Vickerstaff
Paul Vogt
Richard Watson
Janet Wiles
Rachel Wood
Andy Wuensche
Larry Yaeger
Tom Ziemke

Proceedings Publication

All the papers accepted for talks or poster presentations will be published by Springer in the LNCS/LNAI series

Conference Venue & City of Lisbon

The conference will be held in the CCB - Centro Cultural de Belém (Belém Cultural Center) – a venue located on the Tagus riverside not far from its mouth, in a historic quarter of Lisbon. This is within easy reach of the city center by frequent trains along the riverside railway [a seven minutes journey], fast tramways and buses. Scenic attractions, further cafés, bars, and restaurants are very close to the CCB. The main conference sessions will take place in one of the auditoriums. A diversity of other rooms is allocated to workshops and associated events. Meals will be served in an exclusive space open to a large private terrace overlooking the river. Exhibitions, concerts, and other cultural events are on offer in the CCB galleries, two auditoriums and several bars and cafés. Its pleasant gardens and terraces present opportunities for relaxation and chatting. A subway leads to the riverside prom. CCB stands in Praça do Império, a square dominated by XV century Jerónimos Monastery. Nearby Torre de Belém (Belém Tower) is said to have been erected in the site where, on the 8th of July 1497, Portuguese ships set sail to open the sea route to India. Both monuments are classified as World Heritage, by Unesco.



Schedule

ecal2007 September 10 - 14

Sat 8	Sun 9	Mon 10	Tue 11	Wed 12	Thu 13	Fri 14
Associated events Special Workshops	Associated events Special Workshops	Tutorials & Workshops day Opening Ceremony & Welcome Cocktail	Day Cognition and Embodiment Main session, includes two keynote lectures Panel discussion	Day Complex Systems and Networks Main session, includes two keynote lectures Panel discussion EU-FET Workshop Alife Music Concert	Day Social Systems Main session, includes two keynote lectures Panel discussion Banquet	Day Relation Alife-Biology Main session, includes one keynote lecture Panel discussion Special Session: Alife & Biology Social Program & Farewell Cocktail Party

For details, please visit **www.ecal2007.org**
email for contact: **orgsupport@ecal2007.org**

Venue: CCB – Belém Cultural Centre, Lisbon