

# Ezequiel A. Di Paolo

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## Profile

I am an Ikerbasque Research Professor at the Department of Logic and Philosophy of Science, University of the Basque Country. Previously I was a Reader in Evolutionary and Adaptive Systems at the University of Sussex where I have been co-director of the Evolutionary and Adaptive Systems MSc programme. I remain a member of the Centre for Computational Neuroscience and Robotics (CCNR) and the Centre for Research in Cognitive Science at Sussex (COGS). My research interests include adaptive behaviour in natural and artificial systems, biological modelling, complex systems engineering, evolutionary robotics, psychology, biologically-inspired cognitive science, philosophy of biology and philosophy of mind. I have extensive experience in research supervision and research project management (to date: 11 PhDs and 11 Research Fellows). I am the author of over 115 peer-reviewed publications and the Editor-in-Chief of the journal *Adaptive Behavior*.

## Personal Details

Born on 3rd March, 1970

Nationality: Argentinian / Italian.

## Education

D.Phil., Computer Science and Artificial Intelligence	University of Sussex <a href="http://www.sussex.ac.uk/informatics">www.sussex.ac.uk/informatics</a>	1995–1998
M.Sc. Nuclear Engineering (Avg.: 9.03/10, top 5%)	Instituto Balseiro, Argentina <a href="http://www.cab.cnea.gov.ar">www.cab.cnea.gov.ar</a>	1990–1994
Physics & Mathematics (Avg.: 9.64/10)	Universidad de Buenos Aires <a href="http://www.df.uba.ar">www.df.uba.ar</a>	1988–1990

Languages: English and Spanish; working knowledge of French, German, Italian, and Portuguese. Basic Japanese.

## Research Grants

- *eSMCs: Extending sensorimotor contingencies to cognition*: January 2011 - December 2014. FP7-ICT. Euros: 3,645,000. Status: started.
- *TESIS: Towards an embodied science of intersubjectivity*: March 2011 - February 2015. Marie-Curie ITN. Euros: 4,295,272. Status: to start.
- *Spanish Ministry of Science and Technology*: December 2005 – December 2008. Co-Investigator. Información, autonomía y sistemas. In collaboration with University of the Basque Country. Euros

38,000 Status: completed.

- *EPSRC grant*: April 2005 – January 2009. Principal Investigator. Spatially-embedded Complex Systems Engineering (SECSE), EP/C51632X/1. Multi-partner project with UCL, University of Southampton and University of Leeds. £1,534,784 (£516,774 for Sussex). Status: completed. (EPSRC = UK Engineering and Physical Sciences Research Council).
- *EPSRC Research Cluster*: July 2003 – June 2004, GR/S63762/01. Simple Models of Complex Networks (SMoCN). In collaboration with University of Leeds. £53,539. Status: completed.
- *Nuffield Foundation*: March 2001 – February 2003, NAL/00274/G. Adaptation to radical sensorimotor disruptions through internal homeostasis. £4,000. Status: completed.

### Workshop organization

- The Future of the Embodied Mind, 5 - 9 September 2011, San Sebastian, Spain.
- Enactive Approaches to Social Cognition, 31 August - 1 September 2008, Battle, UK.
- Agency in Artificial and Natural Systems, 11-12 July, 2008, Kyoto, Japan
- Mathematical Models in Evolution and Ecology September, 20–21 2007, University of Sussex, Local organization.
- International Research Symposium: A Networks Perspective on Complex Systems Challenges January, 19–20 2004, University of Leeds.
- Summer Workshop on Simple Models of Complex Networks, July 17–18 2003, University of Leeds.
- Workshop on Open Challenges in Complex Networks Science, May 4, 2003, University of Leeds.
- “The View from Elsewhere” at the 6th European Conference on Artificial Life, (ECAL’2001), Prague, Czech Republic, Sept. 2001
- Workshop “Artificial Life: Discipline or Method?” at the 5th European Conference on Artificial Life, (ECAL’99), Lausanne, Switzerland, Sept. 1999

### Other Professional Activities

- Keynote speaker at several international conferences and workshops (e.g, ECAL 2007, launching meeting of euCognition II, 2009).
- Editor-in-chief of the journal *Adaptive Behavior* (2008 – present).
- Member of the Editorial Board of *Constructivist Foundations* and *Leonardo Electronic Almanac* (2009 – present).
- Member of the Board of Directors of the *International Society of Artificial Life - ISAL* (2009 – present).
- Member of the EPSRC College of Peers (2006 – present).
- External examiner, Computing and AI, University of Plymouth.
- Peer review activities for EPSRC, ESRC, Swiss National Science Foundation.
- Project progress reviewer for EU-FP6 projects.
- Guest Editor for special issue of *Phenomenology and the Cognitive Science* on “The Social and Enactive Mind”. Issue 8(4), 2009.
- Guest Editor for special issue of *Adaptive Behavior* on “Plastic mechanisms, multiple timescales and lifetime adaptation”. Issue 10(3/4), 2002.
- Guest Editor for special issue of *Artificial Life* on “Francisco Varela and Alife” Issue 10/3, 2004.
- Regular member of the Programme Committee of major international conferences in the field (ECAL, CEC, SAB, ALife, GECCO).
- Programme Committee Membeship 2004/5: SBRN 2004: Brazilian Symposium on Artificial Neural Networks (SBRN) São Luis, Brazil, 2004; IMAACA 2004. I3M: Genoa, Italy, 2004; AMIRE

2005: International Symposium on Autonomous Miniature Robots. Fukui, Japan 2005; IWASP: International Workshop on Self-Adaptive Systems and Processes. Taipei, 2005; Bio-ADIT 2006: 2nd International Workshop on Biologically Inspired approaches to Advanced Information Technology. Osaka University, 2006;

- Reviewing activity for *Adaptive Behavior*, *Animal Behaviour*, *Artificial Life*, *BioSystems*, *Body and Society*, *Cognitive Science*, *Cybernetics and Systems*, *IEEE Transactions on Evolutionary Computation*, *Journal of Consciousness Studies*, *Phenomenology and the Cognitive Sciences*, *Philosophical Transactions of the Royal Society, London A*, *Physica D*, and others.
- Internal and external examiner of several PhD defences at international level. Member of jury for a defence for a Habilitation à Diriger des Recherches (Université Blaise Pascal, France, 2006).

## Awards and Fellowships

Nuffield Foundation Award for Newly Appointed Lecturers in Maths and Engineering	2001–2003
Overseas Research Students Award (CVCP, UK)	1997–1998
CONICET (Fellowship, Argentine National Research Council for Science and Technology)	1995–1998
Research Award from Argentine Ministry of Education	1995–1997
National Atomic Energy Agency Research Fellow (Argentina)	1994–1995
National Atomic Energy Agency Scholarship (Argentina)	1990–1994

## Current Research

<b>Centre for Research on Life, Mind and Society</b>	University of the Basque Country	2010–present
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- *Embodied cognitive science; Enactivism*
- *Social Cognition; Intersubjectivity*
- *Formal models of living systems*

<b>EASy Group</b>	Centre for Computational Neuroscience and Robotics, University of Sussex	2000–present
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- *Evolutionary robotics*
- *Computational neuroscience*
- *Evolutionary biology*
- *Gene regulation and metabolic modelling*
- *Philosophy of mind and embodied cognitive science*
- *Complex spatial networks*

## Previous Research Experience

<b>Postdoctoral Researcher</b>	Institute for Autonomous Intelligent Systems, German National Research for Information Technology (GMD)	1999–2000
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- *Evolutionary simulation models of spatial dynamics in evolutionary games.*
- *Models of radical adaptation to inversion of the visual field.*

## Doctoral Dissertation

Title: *On the Evolutionary and Behavioral Dynamics of Social Coordination: Models and Theoretical Aspects*

Supervisor: Dr. Phil Husbands. Defended January 1999

**Research Fellow,** Department of Process Control. 1994–1995  
National Atomic Energy Agency Bariloche Atomic Centre

- *Neural networks for symbolic processing*
- *Recurrent neural networks for dynamic data analysis*

### **MSc in Nuclear Engineering Dissertation**

Title: *A Knowledge-Based System for Real-Time Fault Diagnosis in a Nuclear Power Plant*

Supervisor: Dr. Luis Rovere, Dept. Process Control, Bariloche Atomic Centre

Qualification: 10/10, Defended August 1994

### **Current Teaching/Supervision**

**Reader** Evolutionary and Adaptive Systems 2007–present  
Computer Science and AI  
Dept. of Informatics, University of Sussex

**Senior Lecturer** 2005–2007  
**Lecturer** 2000–2005

- *Postdoctoral Research Fellow supervision:* Since 2005: 6 full-time plus 7 international visiting fellows
- *DPhil dissertation supervision:* Currently 5; Finished 8.
- *MSc dissertation supervision:* 6-8 per year. Supervised dissertations have won best dissertation prize in all years so far.
- *UG final-year project supervision:* 6-7 per year. Supervised projects have obtained runner-up Searchspace prizes in 2002 and 2003 and won it in 2003, 2004 and 2005.
- *Intelligence in Animals and Machines:* Autumn Term. Postgraduate seminar organisation, development of course material and online resources. EASy MSc, IS MSc, MRes, MA PoCS.
- *Adaptive Systems:* Spring Term. Lectures, seminar organisation, development of course material and electronic resources, development of curriculum, development of laboratory practices. 3rd-year UGs and EASy MSc, IS MSc, MRes, MA PoCS.
- *Dynamics of Development:* Spring Term. Newly developed postgraduate module starting 2006. Lectures, seminar organisation, development of course material and electronic resources, development of curriculum. Option for EASy MSc, IS MSc, MRes, MA PoCS.

### **Previous Teaching Experience**

**Tutor** Nuclear Engineering Program, Instituto Balseiro 1994–1995  
*Heat and Mass Transfer.*

**Tutor** Nuclear Engineering Program, Instituto Balseiro 1994–1995  
*Laboratory of Control Engineering.*

**Tutor** Universidad de Buenos Aires 1989–1990  
*Multi-variate Calculus and Linear Algebra.*

**Areas of expertise:** Artificial intelligence, adaptive systems, fault-tolerance and long-term stability in complex reconfigurable systems, adaptive behaviour, ecological and evolutionary modelling, evolutionary game theory, spatially embedded processes, computational neuroscience, chronobiology, artificial life, scientific computing and numerical methods, pure and applied mathematics, dynamical systems theory, control theory, physics of nonlinear phenomena and self-organisation, philosophical aspects of adaptation, autonomy, and embodiment.

## Administrative

- *Co-Director Evolutionary and Adaptive Systems MSc Programme: 2008 - present.*
- *Member of CSAI Exam Board: 2001 - present.*
- *European Convenor. 2001/2002*
- *Autonomous Robots Lab development and administration: 2001 - present.*
- *Organizer of the Life and Mind seminar series: 2006 - present*
- *Co-organizer of Artificial Life Reading Group at Sussex (Alergic) seminar series: 2001 - present*
- *Erasmus Programme: Sussex Coordinator for Seminar in Cognitive Science: 2001 - present.*
- *Liaison Erasmus Programme Intesif Philosophie, Technologie, Cognition (PHITECO): 2001 - present.*