

Daniel Martí Ortega

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Personal Data

Citizenship Spanish
Gender Male

Education

09/2003 – 9/2008 **PhD. in Computational Neuroscience**,
“Neural Stochastic Dynamics of Perceptual Decision Making”,
[Universitat Pompeu Fabra](#), Barcelona.

9/2002 **M. Sc. degree in Physics**, [Universitat Autònoma de Barcelona](#).
“Supersymmetric Theories in Extra Dimensions” (in catalan)

9/1999 – 2/2001 **Diploma of Advanced Studies** in Theoretical Physics (DEA)

9/1999 **B. Sc. degree in Physics** [Universitat Autònoma de Barcelona](#).

Research experience

Jan 2013–present **Postdoctoral Researcher**
Group for Neural Theory, Laboratoire d'Études Cognitives,
École Normale Supérieure, Paris.
Dynamics of random networks with partially structured connectivities
(supervisor: [Srdjan Ostojic](#)).

Jan 2012–Dec 2012 **Postdoctoral Researcher**
Center for Theoretical Neuroscience, Columbia University, New York (NY).
Scalability of multimodular neural networks
(supervisor: [Stefano Fusi](#)).

Nov 2008–Dec 2011 **Postdoctoral Researcher**
Center for Neural Science, New York University, New York (NY).
Dynamical Models of Feature Categorization
(supervisor: [John Rinzel](#)).

Sep 2003–Nov 2008 **Graduate Student**
Computational Neuroscience Group, [Universitat Pompeu Fabra](#), Barcelona.
Stochastic Network Models of Perceptual Decision Making
(supervisor: [Gustavo Deco](#)).

Sep 1999–Jul 2003 **Master Student**
[Grup de Física Teòrica](#), [IFAE](#), [Universitat Autònoma de Barcelona](#)
Supersymmetric Quantum Field Theories with Extra Dimensions
(supervisor: Alex Pomarol).

Professional Experience

- 2003–2008 Teaching Assistant, [Department of Information and Communication Technologies](#), **Universitat Pompeu Fabra**, Barcelona.
- [Introduction to Neural Networks & Machine Learning](#), Falls 2004–2006.
 - [Nonlinear Time Series Analysis](#), Spring 2007.
 - [Introduction to Independent Component Analysis](#), Springs 2005–2006.
 - [Physics for Computer Science](#), Falls 2004–2005.
- 2003 Web and net administrator, Grup de Física Teòrica (IFAE), **Universitat Autònoma de Barcelona**, Bellaterra (Barcelona).
- 1999 – 2003 Teaching Assistant (*Professor Associat A4.5*), [Grup de Física Teòrica \(IFAE\)](#), **Universitat Autònoma de Barcelona**, Bellaterra (Barcelona).
- [Quantum Physics](#), Springs 2000–2004.
 - [Theoretical Mechanics](#), Springs 2002–2004.
 - [Physics for Life Sciences](#), Falls 2000–2004.
 - [Physics for Mathematicians](#), Spring 2004.
 - [Differential Equations](#), Springs 2000–2001.
- 1998 – 1999 Collaboration fellowship, [Atlas project](#), Experimental Particle Physics Group, **Institut de Física d'Altes Energies**, Bellaterra (Barcelona).

Publications

1. [Dynamics of Perceptual Categorization](#), DANIEL MARTÍ, JOHN RINZEL, *Neural Computation* **25**(1)1–45.
2. [Reaction Time Correlations during Eye-Hand Coordination: Behavior and Modeling](#), HEATHER DEAN*, DANIEL MARTÍ*, EVA TSUI, JOHN RINZEL, BIJAN PESARAN, *The Journal of Neuroscience* **31**(7):2399–2412, February 2011.
*Equal contribution.
3. [Effective Reduced Diffusion-Models: A Data-Driven Approach to the Analysis of Neuronal Dynamics](#), GUSTAVO DECO, DANIEL MARTÍ, ANDERS LEDBERG, RAMON REIG, MARIA V. SANCHEZ VIVES, *PLoS Computational Biology* **5**(12): e1000587, December 2009.
4. [A Fluctuation-Driven Mechanism for Slow Decision Processes in Reverberant Networks](#), DANIEL MARTÍ, GUSTAVO DECO, MAURIZIO MATTIA, GUIDO GIGANTE, PAOLO DEL GIUDICE *PLoS One* **3**(7): e2534, June 2008.
5. [Extended method of moments for deterministic analysis of stochastic multistable neurodynamical systems](#), GUSTAVO DECO, DANIEL MARTÍ, *Physical Review E*, **75**:031913, March 2007.
6. [Deterministic analysis of stochastic bifurcations in multi-stable neurodynamical systems](#), GUSTAVO DECO, DANIEL MARTÍ, *Biological Cybernetics*, **96**(5), May 2007.
7. [Reward-biased probabilistic decision making: mean field predictions and spiking simulations](#), DANIEL MARTÍ, GUSTAVO DECO, PAOLO DEL GIUDICE, MAURIZIO MATTIA, *Neurocomputing* **69** 10–12, June 2006.

8. [5D Fayet-Iliopoulos terms and its phenomenological implications](#),
DANIEL MARTÍ, ALEX POMAROL (IFAE, Universitat Autònoma de Barcelona),
Physical Review D, **66**: 125005, May 2002. [hep-ph/0205034](#).
9. [Supersymmetric theories with compact extra dimensions in \$N = 1\$ superfields](#),
DANIEL MARTÍ, ALEX POMAROL (IFAE, Universitat Autònoma de Barcelona),
Physical Review D, **64**: 105025, June 2001. [hep-th/010625](#), **topcite 100+**.

Talks

1. *Chaotic dynamics in networks with partially symmetric couplings*
 11 Dec 2014 Centre de Mathématiques et de leurs applications,
École Normale Supérieure Cachan, France
 22 Oct 2014 Techniques and Approaches in Theoretical Neuroscience,
Janelia Research Campus-HHMI, Ashburn, VA, USA.
2. *A Dynamical Model of Feature Categorization*
 3 Nov 2011 Neurotheory Group at Columbia University, New York NY, USA.
3. *A Model of Two Interacting Accumulators for Reach & Saccade Reaction Times*,
 22 May 2010 Special Session in the Sectional 1060th American Mathematical Society Meeting,
New Jersey Institute of Technology, Newark NY, USA.
 2 Feb 2010 Department of Mathematical Sciences,
New Jersey Institute of Technology, Newark NY, USA.
 26 Jul 2009 Swartz Annual Meeting on Computational Neuroscience,
Center for Brain Science, Harvard University, Cambridge MA, USA.
4. *A Fluctuation-driven Mechanism for Slow Decision Making*
 8 Apr 2008 Center for Neural Science, New York NY, USA
 14 Apr 2008 Group of Neural Theory, Paris, France.

Participation in Conferences, workshops, meetings, and summer schools

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| Nov 15–19 2014 | 44th Annual Meeting of the Society for Neuroscience,
Washington DC, USA. |
| Oct 18–24 2014 | Techniques and Approaches in Theoretical Neuroscience,
Janelia Research Campus-HHMI, Ashburn, VA, USA. |
| Feb 27–Mar 4 2014 | Cosyne 11th Annual Meeting,
Salt Lake City UT, USA. |
| Sep 30–Oct 11, 2013 | Statistical Physics, Optimization, Inference and Message-Passing algorithms,
Autumn School at École de Physique des Houches, France. |
| Jul 13–18 2013 | CNS 2013,
Paris, France. |
| Feb 28–Mar 3 2013 | Cosyne 10th Annual Meeting,
Salt Lake City UT, USA. |
| Nov 12–16 2011 | 41st Annual Meeting of the Society for Neuroscience,
Washington DC, USA. |
| Jul 23–28 2011 | 20th Annual Computational Neuroscience Meeting, CNS 2011,
Stockholm, Sweden. |
| Jul 11–14 2011 | Swartz Annual Meeting 2011,
Janelia Farm Research Center, Ashburn CT, USA. |

<i>Nov 13–17 2010</i>	<i>40th Annual Meeting of the Society for Neuroscience (Neuroscience 2010), San Diego CA, USA.</i>
<i>Sep 27–Oct 1 2010</i>	<i>6th Bernstein Conference on Computational Neuroscience, Berlin, Germany.</i>
<i>Jul 25–30 2010</i>	<i>19th Computational Neuroscience Meeting, CNS 2010, San Antonio TX, USA.</i>
<i>Jun 28–Jul 1 2010</i>	<i>Swartz Annual Meeting 2010, Yale University, New Haven CT, USA.</i>
<i>May 22–23 2010</i>	<i>1060th AMS Sectional Meeting, New Jersey Institute of Technology, Newark NJ, USA.</i>
<i>Oct 17–21 2009</i>	<i>39th Annual Meeting of the Society for Neuroscience (Neuroscience 2009), Chicago IL, USA.</i>
<i>Jul 26–29 2009</i>	<i>Swartz Annual Meeting 2009, Harvard University, Cambridge MA, USA.</i>
<i>Jun 13–14 2009</i>	<i>Conference on Neural Dynamics and Computation held in honor of John Rinzel, Courant Institute, New York NY, USA.</i>
<i>Jul 19–24 2008</i>	<i>17th Annual Computational Neuroscience Meeting, CNS 2008, Portland OR, USA.</i>
<i>Oct 17–20 2007</i>	<i>Coherent Behavior in Neuronal Networks, Mallorca (Spain).</i>
<i>May 28–30 2007</i>	<i>Brain Connectivity Workshop 2007, Barcelona.</i>
<i>Oct 11–20 2006</i>	<i>36th Annual Meeting of the Society for Neuroscience (Neuroscience 2006), Atlanta GA, USA.</i>
<i>Sep 1–4 2006</i>	<i>Neuromath06: Conference on Mathematical Neuroscience, Sant Julià de Lòria (Andorra).</i>
<i>Apr 25–29 2006</i>	<i>The Cajal Centenary Conference on the Cerebral Cortex, Centenary of Cajal's Nobel Award, Barcelona.</i>
<i>Aug 21–26 2005</i>	<i>14th Annual Computational Neuroscience Meeting, CNS 2005, Madison WI, USA.</i>
<i>Jun 27–Jul 1 2005</i>	<i>Neuronal Dynamics, by Profs. John Rinzel and David Terman. Course organized by the Doctorate Programme of Applied Mathematics at Universitat Politècnica de Catalunya, Barcelona.</i>
<i>Jun 1–3 2005</i>	<i>First ESF Workshop on Computational Neuroscience: Understanding Brain Functions, Barcelona.</i>
<i>Mar 7–11 2005</i>	<i>Modeling large-scale dynamics of the visual cortex, by Prof. Michael Shelley. Centre de Recerca Matemàtica, Bellaterra (Barcelona).</i>
<i>Sep 3–21 2001</i>	<i>School on String Theory, Feza Gürsey Institute, Istanbul (Turkey).</i>
<i>Jun 18–Jul 6 2001</i>	<i>Summer School on Particle Physics, International Center of Theoretical Physics, Trieste (Italy).</i>
<i>Sep 2000</i>	<i>III Encuentros de Física Teórica, Real Academia de Física, Sitges (Barcelona).</i>
<i>May 1999</i>	<i>Linear Collider Workshop, Sitges (Barcelona).</i>
<i>Feb 9–11 1999</i>	<i>Training Course on GEANT4, CERN, Geneva (Switzerland).</i>
<i>2–3/12/1996</i>	<i>Jornades sobre Física i Geometria, Barcelona.</i>

Participation in Research Projects

<i>2006–2008</i>	<i>Decisions in Motion, European FP6 (Sixth Framework Program) Project 027198.</i>
<i>2001–2003</i>	<i>Unitat de Partícules i Astropartícules, Departament d'Universitats, Recerca i Societat de la Informació, projecte 2001 SGR 00188.</i>
<i>2000–2003</i>	<i>Fenomenologia de Partícules Elementals, CICYT AEN99-0766.</i>

Other skills

- Languages: Catalan & Spanish (mother tongues), English (fluent), French (fluent).
- Specialized software: NumPy/SciPy, Matlab/Octave, XPPAUT, MATHEMATICA,
- Programming in C, C++, and Python.