

Alejandro F. Bujan

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Born: February, 1982—Burgos, Spain

Nationality: Spanish

Current position

PhD student, Bernstein Center Freiburg, Albert-Ludwigs-Universität Freiburg

Areas of specialization

Neurobiology • Biophysics • Computer Science • Computational Neuroscience

Education

2014 (expected)	PhD in Computational Neuroscience, Albert-Ludwigs-Universität Freiburg, Germany
2009	MSc in Computer Science, University of Birmingham, United Kingdom
2008	Master's degree in Biophysics, Universidad Autonoma de Madrid, Spain
2007	Licenciatura degree in Biology, Universidad Complutense de Madrid, Spain

Research Positions

2010-2014	PhD student, Bernstein Center Freiburg, Albert-Ludwigs-Universität Freiburg, Germany Advisors: Ad Aertsen & Arvind Kumar
2013	Visiting scientist, Blue Brain Project, EPFL, Switzerland Advisor: Marc Oliver Gewaltig
2008	Undergraduate researcher, Neural Circuits Laboratory, Cajal Institute-CSIC, Spain Advisor: Liset Menendez de la Prida

Grants, honors & awards

2010	Marie Curie EU fellowship (FACETS-ITN)
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Publications & Conference Presentations

JOURNAL ARTICLES

- 2010 Premysl Jiruska, Jozsef Csicsvari, Andrew Powell, John Fox, Wei-Chih Chang, Martin Vreugdenhil, Xiaoli Li, Milan Palus, **Alejandro F. Bujan**, Richard Dearden, & John Jefferys (2010), [High-frequency network activity, global increase in neuronal activity and synchrony expansion precede epileptic seizures in vitro](#), *J Neurosci*, Vol. 30, No. 16., pp. 5690-5701

Alejandro F. Bujan, Gerald Hahn¹, Yves Frégnac and Ad Aertsen, & Arvind Kumar. Communication through resonance in spiking neuronal networks. (in press in PLoS Comp Bio)

ARTICLES IN PREPARATION

Alejandro F. Bujan, Ad Aertsen, & Arvind Kumar. Interplay between feedforward and recurrent input correlation structure can explain the main features of evoked neuronal dynamics.

CONFERENCE ABSTRACTS

- 2013 **Alejandro F. Bujan**, Gerald Hahn, Yves Fregnac, Ad Aertsen, & Arvind Kumar (2013) [Propagation of synchronous activity through network resonance](#), *Bernstein Conference 2013*
- 2013 Gerald Hahn, **Alejandro F. Bujan**, Yves Fregnac, Ad Aertsen, & Arvind Kumar (2013) [Synfire chains and gamma oscillations: two complementary modes of information transmission in cortical networks](#), *BMC Neuroscience 2013*, 14(Suppl 1):P226
- 2012 Grace Lindsay, **Alejandro F. Bujan**, Ad Aertsen, & Arvind Kumar (2012) ['Within' versus 'between' correlations and their relation to the network structure](#), Neuroscience Meeting Planner, New Orleans, LA: Society for Neuroscience, 2012. Online.
- 2012 **Alejandro F. Bujan**, Arvind Kumar, & Ad Aertsen. (2012). [Stimulus driven correlation gain modulation in neuronal networks](#). *Front Comput Neurosci.* Bernstein Conference 2012
- 2012 Grace Lindsay, **Alejandro F. Bujan**, Ad Aertsen, & Arvind Kumar. (2012). Membrane potential statistics reveal detailed correlation structure. *Front Comput Neurosci.* Bernstein Conference 2012
- 2012 **Alejandro F. Bujan**, Arvind Kumar, & Ad Aertsen (2012) Structure of stimulus induced correlations in random networks with distance dependent connectivity, *COSYNE*, Salt Lake City, Utah

Teaching

- 2013 Models of neurons and networks, responsible for teaching *Synfire chains and pulse packets*.
- Scientific programming with python, responsible for teaching *Introduction to scientific plotting with matplotlib*.

¹Shared first authorship

Simulation of biological neuronal networks, responsible for teaching *Network topology and dynamics*.

2012 Quantitative Methods, responsible for tutoring and preparing exercises for *Signal processing, digital signals and stochastic processes*.

Simulation of Biological Neuronal Networks, responsible for teaching Network Topology and Dynamics.

2011 Scientific Programming with Python, responsible for teaching *Advanced Data Structures and Numpy Arrays*.

Analysis and Models in Neurophysiology, responsible for tutoring *Neuronal Data Analysis*.

Training & Workshops

2012 Advanced scientific programming in python summer school, Kiel, Germany

Sensory coding and natural environment, IST Austria

Neural Coding in Sensory Systems, FENS-IBRO-Hertie Winter School, Obergurgl, Austria

FACETS-ITN Course: Bio-Electronic Interface, Bordeaux, France

FACETS-ITN Course: High-Performance Computing, Juelich, Germany

2011 FACETS-ITN Course: Neuromorphic Electronic Circuits, Heidelberg, Germany

FACETS-ITN Course: Mean field models, Lausanne, Switzerland

FACETS-ITN Course: Theoretical Neuroscience, Lausanne, Switzerland

FACETS-ITN Course: Intellectual Property, Barcelona, Spain

Other activities

2011 Organizer of the [1st iCoNeT PhD Conference: from coding strategies to emergent functional properties in recurrent networks](#)