Alejandro MOTTINI

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France
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Citizenships : Uruguayan, Italian

Key Skills

Scientific
— Image processing
— Applied mathematics
— Machine learning
— Programming in several languages

Personal
— Analytical & problem solving abilities
— Interdisciplinary experience
— Industry & academic experience
— Communication & presentation skills

Education

Oct. '11 - Oct. '14 **Ph.D. Candidate in Automation and Signal Processing**, *Morpheme Research Team : French Research Institute of Computer Science and Automation (INRIA), French National Center for Scientific Research (CNRS) and the University of Nice Sophia Antipolis*, France.

Thesis topic Axonal Morphology Analysis : From Image Processing to Modeling. Developed a method for the comparison and classification of neurons using different mathematical and machine learning techniques and an axonal growth mathematical model based on Markov random chains. Validation on a confocal microscopy image database.

Advisor Xavier Descombes (INRIA). Close collaboration with biologist Florence Besse from the Institute of Biology Valrose (IBV) (Nice, France).

15-21 July, '12 **International Computer Vision Summer School**, *University of Cambridge (UK) / University of Catania (Italy)*, Sicily, Italy.

Topics covered Recognition, Registration and Reconstruction.

'10-'11 **M.Sc. Computational Biology and Biomedicine**, *University of Nice Sophia Antipolis / INRIA / CNRS*, France, Summa Cum Laude (Mention Très Bien).

Topics covered Biomedical signal and image analysis, Bioinformatics, Modeling.

'03-'09 **Electrical Engineer Degree (Master level)**, *Universidad de la República*, Montevideo, Uruguay.

Topics covered *Signal Processing, Applied Mathematics, Telecommunications and Electronics.*

Professional and Research Experience

Oct. '12 - Oct. '14	**Teaching Assistant**, *Dept. of Informatics, University of Nice Sophia Antipolis.*
Main activities	Taught several Bachelor and Master level courses (Image processing, etc).
March - Aug. '11	**Research Internship**, *Ariana Research Team (INRIA/CNRS/UNSA)*, France.
Subject	Detection and tracking of axonal tips from 4D bi-photon microscopy images of developing neurons. Close collaboration with biologists from the IBV.
Advisor	Xavier Descombes (INRIA).
June '09 - Aug. '10	**Integration Engineer**, *Ericsson*, Montevideo, Uruguay.
Main activities	WCDMA RAN Configuration and Integration. Worked on several deployment projects of 3G/2G cellular networks for different clients in Chile and Bolivia. Integrated several Radio Base Stations per day, having to successfully manage multiple tasks simultaneously, coordinating the work of the technicians on the field in Chile and Bolivia remotely from Montevideo/Uruguay and working in collaboration with the Project Managers.
Oct. '09 - Aug. '10	**Research Assistant**, *Dept. of Signal Processing, Universidad de la República*, Montevideo, Uruguay.
Main activities	Software development (Matlab/C++) for the detection of epileptic foci in refractory epilepsy patients using SPECT/MRI images. Worked in close collaboration with doctors from the National Center for Nuclear Medicine to develop and evaluate the software using virtual phantoms and patient data.
July - Dec. '08	**Internship**, *Telefónica*, Montevideo, Uruguay.
Main activities	Worked with the Engineers of the Radio Access Network Group to develop software for the analysis and visualization of network performance data using SQL, MapInfo and other techniques in order to maximize the network performance and to choose the optimum location for placing future Radio base stations.

Skills

Software & OS :	Matlab, Python (NumPy, SciYy, Scikit-learn), C++ (ITK, VTK), SQL, HTML, LaTeX ,MS Office, Windows, Linux. Notions of Java and MapInfo.
Languages :	Spanish (native), English (fluent, C1), French (fluent, C1).

Publications

Journal	**A. Mottini**, X. Descombes and F. Besse. From Curves to Trees : A Tree-like Shapes Distance Using the Elastic Shape Analysis Framework. *Neuroinformatics*, under review, 2014.
Conference	**A. Mottini**, X. Descombes, F. Besse and E. Pechersky. Discrete Stochastic Model for the Generation of Axonal Trees. *In Proc. IEEE EMBC*, Chicago, USA, 2014.
	A. Mottini, X. Descombes and F. Besse. Axonal Tree Classification Using an Elastic Shape Analysis Based Distance. *In Proc. IEEE ISBI*, Beijing, China, 2014.
	A. Mottini, X. Descombes and F. Besse. Tree-like Shapes Distance Using the Elastic Shape Analysis Framework. *In Proc. British Machine Vision Conference*, Bristol, UK, 2013.
	A. Mottini, X. Descombes and F. Besse. Axon Extraction from Fluorescent Confocal Microscopy Images. *In Proc. IEEE ISBI*, Barcelona, Spain, 2012.
	A. Mottini, F. Miceli, G. Albin, C. Aguerrebere, A. Fernández, M. Nunes, R. Ferrando. Integrated Software for the Detection of Epileptogenic Zones in Refractory Epilepsy. *In Proc. IEEE EMBC*, Buenos Aires, Argentina, 2010.
Abstract	R. Ferrando, C. Aguerrebere, G. Albin, A. Fernández, A. Gómez, F. Miceli, **A. Mottini** et al. Localization of epiloptogenic zones in SPECT images using an A-Contrario based algorithm : Evaluation with virtual phantoms and patients. *In Society of Nuclear Medicine Annual Meeting*, Salt Lake City, USA, 2010.
Invited Presentations	Axon Extraction from Fluorescent Confocal Microscopy Images. *Talk at the GdR ISIS Annual Meeting : Image Processing for Biological Imaging*, INRIA Rennes - Bretagne Atlantique, France, 2011.