Alejandro MOTTINI

Applied Scientist, PhD

Seattle, WA
USA
✉ amottini@amazon.com
amottini.github.io

Key Skills

Scientific

- Machine Learning
- Deep Learning
- Image Processing & NLP
- Big Data Analysis

Personal

- Analytical & Problem solving Abilities
- Interdisciplinary Experience
- Industry & Academic Experience
- Communication & Presentation Skills

Education

'11 - '14 **Ph.D. in Automation and Signal Processing**, *INRIA and University of Nice Sophia Antipolis*, France.

Thesis Title Axonal Morphology Analysis: From Image Processing to Modeling.

Topics covered Classification of neurons using image processing and machine learning.

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

Topics covered Biomedical Data 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.*

Experience

May '18 - Present **Applied Scientist**, *Amazon, Alexa Personalization*, Seattle, USA.

Main activities Participate in the development, evaluation and deployment of machine learning models and analytical solutions for Amazon Alexa, with an emphasis in personalizing the Alexa experience. The end goal is to deliver an instantly familiar personal assistant for our customers through the application of cutting-edge scientific techniques.

March. '15 - May '18 **Data Scientist**, *Amadeus IT Group, Innovation and Research Division*, France.

Main activities Conceptualize new research ideas, develop prototypes and perform data analysis for applications in the travel industry. Collaboration with other internal teams, customers and third parties.

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 and the University of Nice Sophia Antipolis*, France.

Subject Detection and tracking of axonal tips from 4D images of developing neurons. Close collaboration with biologists from the IBV.

June '09 - Aug. '10 **Integration Engineer**, *Ericsson*, Montevideo, Uruguay.

Main activities WCDMA RAN Configuration and Integration. Deployment of 3G/2G cellular networks, integration of Radio Base Stations, coordinating the work of the technicians on the field remotely 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 for the detection of statistically significant differences between SPECT images to detect epileptic foci in epilepsy patients. Worked in collaboration with doctors from the National Center for Nuclear Medicine to develop and evaluate the software using patient data and virtual phantoms.

July - Dec. '08 **Data Analysis Internship**, *Telefónica*, Montevideo, Uruguay.

Main activities Worked with the engineers of the Radio Access Network Group to develop analysis and visualization tools for network performance data using SQL, MapInfo and other techniques in order to maximize network performance.

Skills

Software & OS : Python (NumPy, Pandas, Scikit-learn, nltk), TensorFlow, Tableau, Matlab, Git, C++ (ITK, VTK), HTML, LaTeX ,MS Office, Windows, Linux.

Big data analytics : Spark, Hadoop, SQL.

Languages : Spanish (native), English (fluent), French (fluent), German (basic, A1).

Certifications

2017 **International Summer School on Deep Learning**, *University of Deusto & Rovira i Virgili University*, Spain.

2015 **Big Data and Analytics Summer School**, *University of Essex*, UK.

2012 **International Computer Vision Summer School**, *University of Cambridge & University of Catania*, Italy.

Scientific Publications and Patents

Publications

A. Mottini, Alix Lheritier and R. Acuna-Agost. *Airline Passenger Name Record Generation using Generative Adversarial Networks*. In Proc. ICML - Theoretical Foundations and Applications of Deep Generative Models Workshop, Stockholm, Sweden, 2018.

A. Mottini and R. Acuna-Agost. *Deep Choice Model Using Pointer Networks for Airline Itinerary Prediction*. In Proc. KDD, Halifax, Canada, 2017.

A. Mottini and R. Acuna-Agost. *Relative Label Encoding for the Prediction of Airline Passenger Nationality*. In Proc. IEEE ICDM - Data Science and Big Data Analytics Workshop, Barcelona, Spain, 2016.

A. Mottini, X. Descombes and F. Besse. *From Curves to Trees : A Tree-like Shapes Distance Using the Elastic Shape Analysis Framework*. Neuroinformatics, 13 :175, 2015.

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.

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.

Patents

R. Acuna-Agost, A. Lheritier, **A. Mottini**, D. Renaudie. *Systems and Methods for Real-Time Online Traveler Segmentation Using Machine Learning*, U.S. Patent Application 15/704.428, filed Sep. 2017, Patent Pending

R. Acuna-Agost, **A. Mottini**, D. Renaudie. *Machine Learning Methods and Systems for Predicting Online User Interactions*, U.S. Patent Application 15/704.320, filed Sep. 2017, Patent Pending

R. Acuna-Agost, **A. Mottini**, D. Renaudie. *Methods and Systems for Intelligent Adaptive Bidding in an Automated Online Exchange Network*, U.S. Patent Application 15/704.647, filed Sep. 2017, Patent Pending