Eric A. Antonelo

Experience

2016-2019   **Senior Research Associate (Post-doc)**, *University of Luxembourg*, Luxembourg.
Design of machine learning methods for **fraud detection** (non-technical losses) on big datasets of energy distribution networks in a colaboration between private company and university. (**Python**, numpy, sklearn, pandas, own custom ML code, and GANs in **pyTorch**). Data transformation, analysis and visualization. **Mentoring** of Ph.D. students (deep learning in digital advertising) and Master students (adaptive neural control of industrial plants). Instructor for minicourses on Echo State Networks. Reviewer for scientific journals and conferences.

2012–2016   **Post-doc researcher**, *Federal Univ. of Santa Catarina (UFSC)*, Florianópolis, Brazil.
Research on **RNNs** for modeling of autonomous robots, of soft sensors in oil and gas industry, for fault detection in fleet of city buses and detection of steady-state during tests in refrigeration compressors (industrial colaboration: PETROBRAS and EMBRACO). Assistant lecturer for the undergraduate course on **Artificial Intelligence** and for the graduate course on **Machine learning** (logic, Bayesian networks, linear regression, logistic regression, neural networks, etc.). Supervisor of students/interns. Examiner on undergraduate projects. Reviewer for journals (IEEE Trans. on NN, etc.) and AI conferences.

2007–2011   **Ph.D. Researcher**, *Ghent University*, Ghent, Belgium.
Research on reservoir computing (RNN) for robot navigation (*intelligent system design*), with several publications in international journals (3) and conferences (10). Presenter/listener in 15 worldwide conferences/workshops, as well as in meetings of European research projects. Scientific reviewer for AI conferences and for the journal **Artificial Intelligence** in Medicine. Co-supervisor of 5 Master students. Webmaster of university websites.

2005–2005   **Consultant**, *EKA Chemicals*, Halmstad/Gothenburg, Sweden.
Data mining on chemical process multi-variate data with machine learning tools (MLP, SVM). Worked for 2 months with Prof. Thorsteinn Rognvaldsson from Halmstad University.

2001–2004   **Intern**, *PET Informatica UEM*, Maringá, Brazil.
Involved actively on research, education and voluntary work activities. Organization of scientific and student events. Participation in several local and national scientific conferences. Worked also as webmaster. President of the Student's Board in 2003. Research on Neural Networks & Machine learning.

Education

2007–2011   **Ph.D. in Computer Engineering / Machine learning**, *Ghent University*, Ghent, Belgium.
Public defense: 28 October 2011.

2004–2006   **M.Sc. in Computer Systems Engineering**, *Halmstad University*, Halmstad, Sweden, *Highest grade for dissertation.*
Specialization in Intelligent Systems. Title of thesis: *A Neural Reinforcement Learning Approach for Behavior Acquisition in Intelligent Autonomous Systems.*

2000–2004   **B.Sc. in Computer Science**, *State University of Maringá*, Maringá, Brazil, *Highest grade for dissertation.*
Specialization in Computer Systems. Participation in 14 conferences/meetings.

Ph.D. thesis

title   *Reservoir Computing Architectures for Modeling Robot Navigation Systems*

supervisor   Benjamin Schrauwen

summary   This thesis proposes a new efficient and biologically inspired way of modeling navigation tasks for autonomous mobile robots having restrictions on cost, energy consumption, and computational complexity (such as household and assistant robots). It is based on the recently proposed Reservoir Computing approach for training Recurrent Neural Networks. Publications can be downloaded at: http://ericantonelo.com/publications

keywords	*recurrent neural networks, supervised and unsupervised learning, reinforcement learning, robot behavior learning, robot localization*

Specialities

Machine learning	Regression, Classification and Clustering techniques such as (Recurrent) Neural Networks, Support Vector Machines, etc. for **pattern recognition** and multi-variate **data mining**. Others: **GANs**, **Unsupervised learning**, ICA, SVD, PCA (Dimensionality reduction), **Reinforcement Learning**, covariate shift adaptation.
P. Languages	**Python**, **Ruby**, C/C++, Java, Julia, Matlab, PHP, MySQL, jQuery/Javascript, HTML, XML, CSS.
Others	ML toolboxes (**pyTorch**, **sklearn**, **TensorFlow**, Organic), **NumPy/SciPy**, Solr, NLP (basic), **Regular expressions**, **RoR**, Drupal, Linux (git, shell script, etc.), Latex. **Deep learning**@udacity (partial).

Other technical production/business development

TigerAI	Behavioral (biometrical) Intruder Detection for Mobile Banking. Own customized NN implementation (in **Python**). **Android** app development (in **Java**). 2016
NatVim	http://natvim.com. RoR-based (**Ruby**) vertical search engine for natural and alternative treatments for diseases and health-related articles. Roles: Software Architect, Crawler and Full stack development (Back-end and Front-end); SEO. Also designed and fully developed a marketplace for natural products (https://produtos-naturais.natvim.com). 2015.
Imofox	http://imofox.com.br. RoR-based (**Ruby**) vertical web search portal for real estate properties to sell or to rent in Brazil. Roles: Software Architect, Crawler and Full stack development (Back-end and Front-end); XML-based integration to other websites; SEO. 2012.
Imohoo	http://imohoo.com.br. Drupal-based (**PHP**) vertical search engine of real estate properties in Brazil, achieved almost 1 million page views/month by April 2011. Roles: Software Architect, Crawler, and Full stack development, SEO, marketing, and integration to other services. 2009.
SINAR	Simulation environment for autonomous mobile robots (**C++** and **Qt** in Linux). 2001-2008.
Game UI	GUI interface for multi-player game for cell phones. Written in **Java**. 2004.

Awards and Fellowships (since 2004)

2017-2019	**FNR AFR-PPP award**, *Postdoc at University of Luxembourg, Luxembourg.* Fonds National de la Recherche - Public Private Partnership research.
2012-2015	**CNPq/CAPES scholarship award**, *Postdoc at UFSC, Brazil.*
2007-2011	**BOF scholarship award**, *Ph.D. in Ghent University.* Belgium Special Research Fund for developing countries.
2004-2006	**Alban scholarship award**, *M.Sc. in Halmstad University.* Programme Alban is the European Union Programme of High Level Scholarships for Latin America. Rank: 77 out of 779 awarded applications.

Languages

English	Fluent	*Used on a daily basis for more than 7 years at international environments.*
Portuguese	Fluent	*Native mother tongue.*
Dutch	Intermediate	*Intermediate listening and reading. Limited conversation ability.*
Italian / French	Basic	*Reading*

Interests

machine learning, **AI**, **data mining**, **data science**, **industrial applications of ML**, reinforcement learning, anomaly detection, **management**, international environments, web technologies, philosophy, and exercising.