

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*

Experience

- 2016-Present **Senior Research Associate (Post-doc)**, *University of Luxembourg*, Luxembourg.
Design of machine learning methods for fraud detection (non-technical losses) in energy distribution networks in a collaboration between private company and university. (**Python**, **numpy**, **sklearn**, own custom ML code, and GANs in **pyTorch**). Mentoring of Ph.D. students.
- 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 collaboration: 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.
- 2015–Present **Founder, Software Developer**, *NatVim*, <http://natvim.com>.
RoR-based vertical search engine for natural and alternative treatments for diseases and health-related articles. Roles: Crawler and Full stack development (Back-end and Front-end). Secondary website: developed marketplace for natural products (<https://produtos-naturais.natvim.com>).
- 2012–Present **Founder, Software Developer**, *Imofox*, <http://imofox.com.br>.
RoR-based vertical web search portal for real estate properties to sell or to rent in Brazil. Roles: Crawler and Full stack development (Back-end and Front-end).
- 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.

- 2009–2013 **Founder, Developer**, *Imohoo*, <http://imohoo.com.br>.
 Drupal-based vertical search engine of real estate properties in Brazil, achieved almost 1 million page views/month by April 2011. Roles: Crawler, and Full stack development, SEO, marketing, and integration to other services.
- 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.
- 2003–2003 **President of the Student's Board**, *CACCOM*, Maringá, Brazil.
 President of the Student's Board of the Bachelor course in Computer Science (CACCOM), State University of Maringá (UEM).
- 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.

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

- TigerAI Behavioral (biometrical) Intruder Detection for Mobile Banking. Own customized NN implementation (in **Python**). **Android** app development (in **Java**). 2016-2017.
- 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

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| English | Fluent | <i>Used on a daily basis for more than 7 years at international environments.</i> |
| Portuguese | Fluent | <i>Native mother tongue.</i> |
| Dutch | Advanced | <i>Advanced listening and reading. Limited conversation ability.</i> |
| Italian / French | Basic | |

Interests

autonomous robots, **machine learning**, **RNNs**, **reinforcement and deep learning**, artificial intelligence, data science, web technologies, entrepreneurship, international environments, philosophy, and exercising.