

CONTACT INFORMATION

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RESEARCH INTERESTS

Deep Learning for Multiple Data Types: machine learning data mining deep learning big data
cloud computing natural language processing computer vision gpu computing optimization
high performance computing

AWARDS AND HONOURS

- Deep Learning Instructor - Certified Instructor Program NVIDIA 2019.
- AI Ambassador - Intel Corporation, 2018.
- Doctoral Scholarship, National Council for Scientific and Technological Development, Brasil 2015.
- 1st place at Visualizing Evolution Competition VizGEC, GECCO. Association for Computing Machinery Special Interest Group on Genetic and Evolutionary Computation, 2013.
- Master Scholarship NOTA 10, competitive award from the State Agency for Research, 2012.
- Master Scholarship, Brazilian Coordination of High-Level Personnel Training, 2012.

EDUCACIÓN

Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brasil

Ph.D. Candidate, Department of Electrical Engineering, August 2015 to August 2019

- Thesis title: *Knowledge Extraction from text documents using Augmented Memory Networks*
- Advisor: Professor Ricardo Tanscheit

M.Sc., Electrical Engineering, March 2012 to March 2014

- Thesis title: *Heterogeneous Parallelization for Quantum Inspired Linear Genetic Programming*
- Advisor: Professor Marco Aurelio Cavalcanti Pacheco

National University of Engineering, Lima, Perú

B.Sc., Mechanical Engineering, June 2005 to July 2010

- Mechatronics Engineering (emphasis on artificial intelligence and digital computers)
- Minor in Control Systems (programming and algorithms)

BOOKS AND PUBLICATIONS

- [1] Cordeiro, Fábio Corrêa ; Villalobos, Cristian Enrique Muñoz . Petrolês - How to Build a Specialized Oil and Gas Corpus in Portuguese. Rio Oil and Gas Expo and Conference, v. 20, p. 387-388, 2020.
- [2] Cristian Muñoz, Leonardo Mendoza and Ricardo Tanscheit "Construction of a Transformer-based model for Relation Extraction", CBIC 2019, Belén - Brazil (2019)
- [3] Jose David Bermudez Castro, Ricardo Rei, Jose E. Ruiz, Pedro Achanccaray Diaz, Smith Arauco Canchumuni, Cristian Muñoz Villalobos, Felipe Borges Coelho, Leonardo Forero Mendoza, Marco Aurelio C. Pacheco "A free web service for fast COVID-19 classification of chest X-Ray images", arXiv:<https://arxiv.org/abs/2009.01657>
- [4] Costa, Leandro Santos DA ; Blank, Frances Fischberg ; Oliveira, Fernando Luiz Cyrino ; Villalobos, Cristian Enrique Muñoz . Conditional Pricing Model with Heteroscedasticity: Evaluation of Brazilian Funds. RAE-Revista de Administracao de Empresas, v. 59, p. 225-241, 2019.
- [5] Arthur Silveira, Cristian Muñoz and Leonardo Mendoza "Severe Asthma Exacerbations Prediction Using Neural Networks", EANN 2019, Crete - Greece (2019)
- [6] Leonardo A. Forero Mendoza, Cristian Muñoz, Manoela Kohler, Evelyn Batista and Marco A. Pacheco "Analysis and Classification of Voice Pathologies using Glottal Signal Parameters with Recurrent Neural Networks and SVM", ICAART 2019, Prague - Czech Republic (2019)
- [7] Gabriel Lins Tenorio, Cristian E. Muñoz Villalobos, Leonardo A. Forero Mendoza, Eduardo Costa da Silva and Wouter Caarls, "Improving Transfer Learning Performance: an Application in the Classification of Remote Sensing Data", ICAART 2019, Prague - Czech Republic (2019)
- [8] Juan G. Lazo Lazo, Rogério Póvoa, Cristian E. Muñoz V., "Arrears identification for markets of large customers and public sector", CITENEL, Rio de Janeiro, Brasil (2013)

- [9] Pedro Achancaray, Cristian Muñoz, Luis Rojas and Ricardo Rodriguez, "Human Computer Interface based on hand tracking", Accepted to be presented in MUSME 2011,V-3478-2011, pag. 293, October 25-28-2011, Valencia, España (2011)
- [10] Cristian E. Muñoz V.,Oscar A. Villalta R., Alhiet Orbegoso, "Matlab 2010", MACRO E.I.R.L. (2010)

TEACHING EXPERIENCE

Specialization and Extension Courses (CCE PUC-Rio), Rio de Janeiro, Brasil

Assistant Professor

March 2016 to present

- Decision Support in Python (Coordinator: Marco A. Pacheco)
- Introduction to MATLAB (Coordinator: Marco A. Pacheco)
- Deep Learning (Coordinator: Marco A. Pacheco)

Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Rio de Janeiro, Brasil

Instructor

March 2016 to March 2019

- ELE 2399: Fuzzy Logic (Master Course)
- ELE 2762: Deep Learning (Master course)
- ENG 1361: Applied Computational Intelligence (Undergraduate Course)

Instructor

August 2015 to March 2016

- ENG 1448: Digital Systems (Undergraduate Course)
- ELE 2761: High Performance Computing (Master Course)
- ELE 2395: Evolutionary Computing (Master Course)

RESEARCH EXPERIENCE

Pontifical Catholic University of Rio de Janeiro, RJ, Brazil

Applied Computational Intelligence Laboratory

March 2012 to present

Research and development of Artificial Intelligence Strategies in the areas of Finance, Risk Assessment and Prediction of Arrearage. Development of optimization algorithms libraries (Genetics algorithms, Linear Genetic Programming, Pattern Search, and others) for high performance computing projects:

- BIG OIL Project: Creating of Data Lake repositories for Big Data applications. Information retrieval from text documents and videos using Deep Learning techniques.
- OCTOPUS 3 project: Increase the computation power using distributed system: resource managers like Torque PBS and implement new functionalities using Hadoop platform.
- OCTOPUS 2 Project: Well location optimization system for Petrobras. The system is able to choose the best configuration of wells (and their types) given the oil field, in order to maximize the net present value (NPV).
- APOGEU Project: Intelligent system to support the management of contracting services that allow: Formation of standard prices, more accurate analysis of proposals, improvement of the negotiation of proposals, monthly monitoring of contract costs and inference and monitoring of indicators.
- PrevIn Project: Intelligent system to support the management of energy efficiency, capable of identifying and prioritizing customers that present opportunities to reduce demand and consumption, capable of guiding consumers to conserve and use electricity rationally.

PROFESSIONAL EXPERIENCE

Applied Computational Intelligence Laboratory, Rio de Janeiro, Brasil

Senior Data Scientist

March 2018 to present

- Coordinate development team activities.
- Ensuring implementation of policies and practices .
- Design Deep Learning models for NLP and CV Applications .
- Integrate services with Cloud Computing and Clusters .

Junior Data Scientist

March 2012 to 2018

- Developing software using Shell, C++ and C# .
- Management Cluster using Resource Manager PBS Torque and SLURM .
- Version Control using Git .
- Working by Scrum framework .

Alloy Metal Factory - FAMETAL, Lima, Perú

Researcher and Programmer

May 2010 to January 2012

- Design mechanic components of electrical boards (CAD).
- Stress analysis simulation of metal structures (CAE).
- Programming CNC Machines for development of mechanical components in sheet metal (CAM).

STRENGTHS

- Development: Python Shell Java Javascript C C++ C# HTML CSS Git
- Development Tools-DB: SQL Oracle MySQL
- Development Tools-IDE: VisualStudio VSCoDe PyCharm

**REFERENCES
AVAILABLE TO
CONTACT**

Ph.D. Juan G. Lazo Lazo (e-mail: jg.lazol@up.edu.pe)

- Professor, Universidad del Pacífico
- ★ *Ph.D. Lazo was my supervisor in many research projects at ICA laboratory.*

Ph.D. Leonardo Forero Mendoza (e-mail: mendonza@ele.puc-rio.br)

- Professor, Universidade do Estado do Rio de Janeiro,
- ★ *Ph.D. Mendoza has been a valuable interdisciplinary resource to me.*

Ph.D. Douglas Mota Dias (e-mail: douglasm@ele.puc-rio.br)

- Professor, Universidade do Estado do Rio de Janeiro,
- ★ *Ph.D. was my master supervisor.*

Ph.D. Marco A. Pacheco Cavalcanti (e-mail: marco@ele.puc-rio.br)

- Professor, Pontifical Catholic University of Rio de Janeiro,
- ★ *Ph.D. Marco Aurelio was my advisor during my masters studies.*

LANGUAGES

Spanish, Portuguese, English.