

Laura de Oliveira F. Moraes

Curriculum Vitae

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<https://scholar.google.com/citations?user=Q-TjvoEAAAAJ>

Education

- 03/2016– Present **DSc in Systems Engineering and Computer Science**, *Federal University of Rio de Janeiro*, Rio de Janeiro.
Research field: Artificial Intelligence, Education.
Title: A framework to support teachers in identifying knowledge gaps
Summary: We propose an unsupervised approach to extract the latent skills and concepts a student need to solve learning activities.
- 03/2013– 03/2016 **MSc in Systems Engineering and Computer Science**, *Federal University of Rio de Janeiro*, Rio de Janeiro.
Title: Lymphoma classification using a Decision Tree approach.
Summary: We propose a decision tree approach to perform a lymphoma differential diagnosis using flow cytometry data.
- 03/2006– 03/2013 **Engineer's degree in Electronic and Computer Engineering**, *Federal University of Rio de Janeiro*, Rio de Janeiro.

Experience

- 12/2011– Present **Founder Partner**, *TWIST Systems*, Rio de Janeiro.
- Research Natural language processing on social media posts. We perform topic modeling, sentiment analysis, entity recognition, bot identification, among other tasks.
- 06/2019– Present **MBA Lecturer**, *Fundação Getúlio Vargas*, Rio de Janeiro.
- Lectures Predictive Analysis and Data Clustering courses.
- 05/2018– 08/2018 **Research Fellow**, *Data Science for Social Good at University of Chicago and Nova SBE*, Lisbon.
- Research Built a predictive model for the Portuguese Government to identify individuals at a high risk of becoming long-term unemployed and provide better assistance to them. The project culminated in a paper that was accepted for Neural Information Processing Systems (NeurIPS) AI for Social Good Workshop, Montreal, Canada (2018)
- 05/2017– 12/2017 **Lecturer**, *Recode (NGO)*, Rio de Janeiro.
- Lectures Courseware development and taught Exponential Technologies (Artificial Intelligence, Virtual and Augmented Reality, Biotechnology and IoT) classes
- 08/2016– 07/2017 **Lecturer**, *Federal University of Rio de Janeiro*, Rio de Janeiro.
- Lectures Introduction to Computer Programming (Python). The focus was to stimulate the computational way of thinking in the students using the Python language.

- 05/2015–01/2016 **Software Developer**, *Botanical Garden of Rio de Janeiro*, Rio de Janeiro.
Developed several web systems to provide to biologists and geographers distinct analysis and visualizations using collected flora data. The goal of the project was to formalize a list with endangered species.
- 10/2009–03/2013 **Software Engineer**, *European Organization for Nuclear Research (CERN)*, Geneva.
Responsible for specifying software requirements and developing web systems to support management activities, such as papers publication, equipments tracking, talks and presentations distribution and members affiliation.
- 03/2008–09/2009 **Undergraduate researcher**, *Federal University of Rio de Janeiro (UFRJ)*, Rio de Janeiro.
Web system development to support Tuberculosis diagnostic (with the University Hospital)
- 03/2007–03/2008 **Teaching Assistant**, *Federal University of Rio de Janeiro (UFRJ)*, Rio de Janeiro.
Lectures Introduction to Computer Programming. Assist students during practical classes and correct students assignments.

Publications and Presentations

Publications in refereed journals

Moraes, L.O.; Pedreira, C.E. ; Barrena, S. ; Lopez, A. ; Orfao, A. . **A Decision-Tree Approach for the Differential Diagnosis of Chronic Lymphoid Leukemias and Peripheral B-cell Lymphomas**. *Computer Methods and Programs in Biomedicine*, v. 178, p. 85-90, 2019. doi: <https://doi.org/10.1016/j.cmpb.2019.06.014>

Moraes, L O F; Graef, F F; Nessi, M; Maidantchik, C; Pommès, K; Karam K; Evora, L H R A; Cirilli, M . **Glance Information System for ATLAS Management**. *Journal of Physics. Conference Series (Online)*, v. 331, p. 082004, 2011. doi: <https://doi.org/10.1088/1742-6596/331/8/082004> Oral presentation. At the XVIII Conference on High Energy Physics (CHEP), Taiwan, 2010.

Presentations in conferences

Moraes, L. O. F. ; Pedreira, C. E. **Designing an Intelligent Tutoring System Across Multiple Classes**. In: 4th Educational Data Mining in Computer Science Education (CSEDM), 2020, Virtual Conference.

Troya, I. M. R. ; Chen, R. ; Moraes, L. O. F. ; Bajaj, P.; Kupersmith, J. ; Ghani, R. ; Bras, N B ; Zejnilovic, L. **Predicting, explaining, and understanding risk of long-term unemployment**. In: 32nd Annual Conference on Neural Information Processing Systems (NeurIPS) AI for Social Good Workshop, 2018, Canada.

Losier, L. M. ; Graef, F. ; Desgagné, E. ; Hochleitner, F. ; Moraes, L. O. **Cloud-Based Alert System for Aggressive Natural Disasters**. In: 15th Pan-American Conference on Soil Mechanics and Geotechnical Engineering, November 2015, Buenos Aires, Argentina.

Maidantchik, C. ; Moraes, L. O. F. ; Karam, K. ; Graef, F. F. ; Evora, L. H. R. A. . **Web Systems to support the publication of the ATLAS data analysis paper**. In: XXXII Encontro Nacional de Física de Partículas e Campo, 2011, Brazil.

Work in progress

Moraes, L.O.; Pedreira, C.E. ; **Clustering Introductory Computer Science Exercises Using Topic Modeling Techniques** (submitted, under minor review)

Moraes, L.O.; Delgado, C. ; Pedreira, C.E. ; **Supporting Educational Data Driven Decision Making** (submitted)

Moraes, L.O.; Wang, C.; Zhao, S; Sahebi, S.; Pedreira, C.E. ; **Deriving Q-Matrix from data with Matrix and Tensor Factorizations**

Technical Strenghts

Machine Learning Algorithms, Data Science, Data Visualization, Data Bias, Data Quality, Project Management, Python, R

Languages

Portuguese	Native	Spanish	Advanced
English	Fluent (ECPE, TOEFL iBT Score: 110)	French	Basic

Awards

2nd EPFL Engineering PhD Summit (finalist), EPFL.

Talks

- 11/2019 **Social Impact of Data**, Innovation Dialogues from FIRJAN, Casa Firjan, Brazil, Available at: <https://www.youtube.com/watch?v=JuuoizivH7o> (In portuguese, accessed on 29/10/2020)
- 10/2019 **A framework to support teachers in identifying knowledge gaps**, 2nd EPFL Engineering PhD Summit, EPFL, Switzerland, Available at: <https://tube.switch.ch/switchcast/epfl.ch/events/74c3ef7e-3cc9-4918-844a-3d2ee5a52625> (In english, accessed on 29/10/2020)
- 06/2018 **Data Science Applied to Social Good**, System Engineering and Computer Science Program (PESC) Week 2018, UFRJ, Brazil, Available at: <https://www.youtube.com/watch?v=IqDx15r-fSY> (In portuguese, accessed on 29/10/2020)

Projects

Machine Teaching, www.machineteaching.tech.

This is an web-based learning environment used in Introduction to Programming classes to provide timely feedback to keep students engaged and process students' data to uncover students difficulties and understand their knowledge.