Priscylla Silva | Curriculum Vitae

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Research Interests

Machine Learning, Deep Learning, Time Series Analysis, Complex Networks, Graph Neural Networks, and Explainable AI.

Education

University of São Paulo **Brazil**
Ph.D. Candidate in Computer Science and Computational Mathematics *Aug 2020 – present*
Advisor: Luis Gustavo Nonato

Federal University of Campina Grande **Brazil**
M.Sc. in Computer Science *2015–2018*
Advisor: Joseana Macêdo Fechine

Federal University of Alagoas **Brazil**
B.Sc. in Computer Science *2010–2014*
Advisor: Evandro de Barros Costa

Research Experience

Visiting Scholar, New York University
VIDA Lab *Ago/2023–current*
Research on Machine Learning explainability at the Visualization Imaging and Data Analysis Center (VIDA) with Professor Claudio Silva.

Research Team Member, University of São Paulo
GIVA Lab *Aug/2021–present*

- Develop crime prediction techniques using the street network of the city with the application of graph neural networks;
- Conducted a pilot study on the disagreement problem in explanation methods for machine learning models.

Research Assistent, Federal Institute of Alagoas
Software Research Center *Jun/2020–Jul/2021*
Belonged to the instructor team. Working with computer networking and 5G.

Undergraduate Research Assistant, Federal University of Alagoas
TIPS Lab *Jun/2010–Mar/2017*

- Developed two Intelligent Tutoring Systems (ITS) for Propositional Logic and Mathematics. Both were used in Fundamentals of Mathematics (CCOM004) and Logic Applied to Computing (CCOM014) courses.
- Collaborated in a project whose objective was to develop a semantic approach to integrate data from multiple sources, for the construction and maintenance of user profiles that were used to improve the quality of a recommender system.
- Worked with recommendation systems, Case-Based Reasoning (CBR), Machine Learning, Scala, Play framework, and Java.

Teaching Experience

Teaching Assistant, University of São Paulo

SCC0634 – Artificial Intelligence Applications *Jul/2022–Dec/2022*

- Oversaw lecture slides, assignments, exams, and final projects;
- Course material covers the use of machine learning models applied in industry to solve tasks with images, text and audio. The YOLO, BERT, ChatGPT models are used. Explanation methods are also discussed: LIME and SHAP.

Teacher, Federal Institute of Alagoas

Computing course for high school students *Jun/2016–Aug/2020*

- During the course, I was responsible for architecture of computers, operating systems, computer networks, and software engineering classes.

Teacher, Federal Institute of Sergipe

Computer Network Course *Sep/2014–Jun/2016*

- During the course, I was responsible for programming, shell script and architecture of computers classes.

Teaching Assistant, Federal University of Alagoas

CCOM033 – Artificial Intelligence *Feb/2012–Jul/2014*

- Reinforced lessons by tutoring students one-on-one or in small groups. Supported lesson planning, tracking attendance, and grading assignments.
- Course material covers the historical aspects and artificial intelligence conceptualization. Troubleshooting via search. Representation of knowledge and reasoning. Specialist systems. Acquisition of knowledge and automatic learning. Case-based reasoning. Treatment of uncertainty. Seminars on complementary topics.

Publications

Silva, P., Costa, E., Araújo, J. R. D. (2019, June). An adaptive approach to provide feedback for students in programming problem solving. In International Conference on Intelligent Tutoring Systems (pp. 14-23). Springer, Cham.

de Barros Costa, E., Silva, E. T., Santos, A., Azevedo, A. C. S., Silva, P., Silva, M. T., Lima, C. (2014, October). An agent-based tutoring system for learning propositional logic using multiple linked representations. In 2014 IEEE Frontiers in Education Conference (FIE) Proceedings (pp. 1-7). IEEE.

Silva, P., Pinheiro, R., Costa, E. (2014). A Predictive Model for Video Lectures Classification. In J. C. Stamper, Z. A. Pardos, M. Mavrikis, B. M. McLaren (Eds.), Proceedings of the 7th International

Conference on Educational Data Mining, EDM 2014, London, UK, July 4-7, 2014 (pp. 325–326).

Costa, E., Silva, P., Silva, M., Silva, E., Santos, A. (2012, June). A multiagent-based ITS using multiple viewpoints for propositional logic. In International Conference on Intelligent Tutoring Systems (pp. 640-641). Springer, Berlin, Heidelberg.

Rocha, R. H. S., Costa, E., Brito, P., Silva, M., Silva, P., de Barros Paes, R. (2012). Improving construction and maintenance of agent-based applications through an integration of shell and software framework approaches. Encontro Nacional de Inteligência Artificial.

Costa, E., Silva, P., Magalhaes, J.,Silva, M. (2012). An open and inspectable learner modeling with a negotiation mechanism to solve cognitive conflicts in an intelligent tutoring system. In Workshop and Poster Proceedings of the 20th Conference on User Modeling, Adaptation, and Personalization (pp. 47-52).

Magalhaes, J., de Souza, C. C., Silva, P., Costa, E., Fechine, J. M. (2012). Improving a recommender system through integration of user profiles: a semantic approach. In UMAP Workshops.

Awards and Funding

2022: Scholarship by São Paulo Research Foundation (FAPESP);

2021: National Scholarship by Coordination for the Improvement of Higher Education Personnel (CAPES);

2019: For the master thesis I received a Honorable Mention in the Alexandre Direne Awards (Best thesis award in the Brazilian Congress of Informatics in Education);

2016: Internet Society Fellowship to the IETF 95 - First Time Fellows;

2016: Brazilian Internet Steering Committee Fellowship to the Brazilian Internet Forum in the Youth@ForumBR Program;

2015: Internet Society Fellowship to the IGF 2015 in the Youth@IGF Program.

Invited Talks

2022: **Explainable Machine Learning**. Invited Talk at the Federal University of Alagoas.

2022: **Graph Neural Networks: An Introduction**. Invited Talk at the Federal University of Alagoas.

2022: **Introducing Artificial Intelligence to high school students: an report**. Oral Presentation at the Workshop on Computing Education.

2021: **Maker culture**. Interview about maker culture and robotics projects in public schools that I have been developing since 2017.

2019: **An Adaptive Approach to Provide Feedback for Students in Programming Problem Solving**. Oral Presentation at the International Conference on Intelligent Tutoring Systems (ITS).

2016: **Feedback Models for Students in Virtual Learning Environments**. Tutorial presentation at the Brazilian Congress on Computer in Education.

2015: **A Systematic Mapping of Brazilian Initiatives in Programming Teaching Environments**.

Oral Presentation at the Brazilian Symposium on Computers in Education.

2013: **An Approach to Provide Educational Resources in an Interactive Learning Environment**. Oral Presentation at the Brazilian Symposium on Computers in Education.

2011: **Software Product Lines: differents products to different clients**. Invited Talk at Circuito Alagoano de Tecnologia da Informação (CIA-TI).

Languages

Portuguese: Native

English: Advanced   *Professional working proficiency*

Spanish: Intermediate   *Conversationally fluent*