Eric Araújo, PhD, Professor

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LINKS

Linkedin, Google Scholar

PROFILE

Eric Araújo is an Associate Professor and heads the Behavioural Informatics Laboratory (BILbo) at the Federal University of Lavras (UFLA). Araújo holds a PhD from VU Amsterdam with the thesis title "Contagious: Modeling the spread of behaviours, perceptions, and emotions in social networks." His research involves data-oriented agent-based modeling, addressing topics such as social contagion, crime prevention, health and cognitive models. Araújo also works with complex networks, data science, and artificial intelligence applied to mobility studies of researchers and medical doctors in Brazil.

EMPLOYMENT HISTORY

03/02/2011 — Present

Associate Professor, Federal University of Lavras (UFLA), Brazil

Lavras

Address: *Trevo Rotatório Professor Edmir Sá Santos, s/n - Caixa Postal 3037 - Zip Code: 37203-202*

Lecturing Activities

Lecturing the following disciplines to the undergraduate courses of (1) Computer Science, (2) Information Systems, and (3) Automation and Control Engineering:

- Digital Circuits
- Artificial Intelligence
- Introduction to Agent-based Models
- Research Methodology
- Advanced Studies in Data Mining

Some of these courses are also offered to the Masters Program in Computer Science.

The following tasks and methods were used during the time I worked as a professor in this institution:

- Design and update curriculum for programming, computer networks, and artificial intelligence courses
- Integrate industry examples for practical understanding
- Conduct engaging lectures, seminars, and workshops for Information Systems students
- Facilitate discussions and exercises for critical thinking and problem-solving
- Provide hands-on experience in programming, AI, and computer networks
- Develop assessments, offer constructive feedback, and support student learning

Research Activities

Currently, I'm involved in the following research projects:

- Socioeconomic impacts in areas affected by technological disasters: This project addresses the socio-economic impacts of technological disasters in Brazil, differentiating them from natural disasters. From 2000 to 2020, Brazil experienced 208 disasters, including floods, droughts, and the COVID-19 pandemic. Noteworthy technological disasters involved oil spills and dam collapses. The study aims to understand the complexity of these events, emphasizing immediate applicability and necessitating an interdisciplinary perspective, including social sciences, economics, engineering, geology, geography, and urban planning. The focus is on prevention, mitigation, preparation, response, recovery, and reconstruction, with attention to socio-economic impacts. The recent surge in technological disasters, with 96 occurrences after 2000, underscores the need for comprehensive study and mechanisms for prevention and mitigation.
- ProCoReS - Characterization and Modeling of Contagion Processes in Social Networks of Different Domains (funded): The interaction between people on social networks is intensifying, with unprecedented consequences for society. The ease of communication, speed of message propagation, and variety of technological resources lead to a rapid contagion process of ideas and behaviors. The intention is to develop new features, methods, and techniques to model contagion processes for a better understanding of the mechanisms guiding them in the connected society. There is a plan to propose new metrics and different models to consider interactions in various media simultaneously.
- Urban afforestation and crime: This research investigates the relationship between Urban Afforestation and crime in cities, aiming to challenge perceptions of trees facilitating criminal activities. While some claim trees hinder safety, studies suggest a negative correlation between Urban Afforestation and crime. The study uses city tree inventory, police crime data, and public perception surveys. The goal is to advance scientific understanding, addressing gaps in knowledge about the social and environmental aspects of Urban Afforestation. The findings aim to inform environmental management practices by public authorities and civil society.

- Computational modeling and simulation of contagion in social networks: Social contagion is any phenomenon involving the exchange of behaviors, perceptions, and emotions among individuals when interacting with each other. This phenomenon occurs unconsciously and promotes the formation of consensus opinions, the diffusion of behaviors that contribute to improving the quality of life, among many other examples. This project aims to simulate the diffusion of information from social media in various contexts. The effects of network topology, individual characteristics of agents in the simulated social network, as well as techniques and possible means to promote a network that benefits information with a high degree of quality over fake news or information that does not contribute to the network's objective will be examined.
- Agent-based modeling for testing criminal theory: This project aims to primarily utilize Artificial Intelligence tools, such as machine learning and agent-based models, to construct computational simulations for studying and proposing improvements in the Brazilian urban scenario. The proposed enhancements focus on technological and strategic aspects, intending to diminish opportunities for criminal agents. Results will be based on data acquired from responsible entities and public data related to urban space, crime rates, availability of surveillance tools, policing, and people's movement within various spaces to be reproduced.

The list of all past projects and the record of supervised students throughout my tenure can be viewed through the following link: Lattes CV

Administrative Roles

Here is the list of administrative roles I assumed during my tenure:

- Academic Coordinator of the Masters Course in Computer Science (08/2021 - 03/2023)
- Vice-chief of the Computer Science Department (07/2020 - 08/2021)
- Coordinator of the Alumni Department at the Extension and Culture Office (12/2021 - 03/2023)

02/25/2010 — 03/01/2011

Academic Coordinator, Faculdade Presbiteriana Gammon (FAGAMMON), Brazil

Lavras

Address: *Praça Doutor Augusto Silva, 616 - Centro - Zip Code: 37200-154*

As the Coordinator of the Undergraduate Course in Information Systems at FAGAMMON, this role involved multifaceted responsibilities, combining administrative leadership, academic oversight, and collaborative engagement.

- Collaborate on Information Systems curriculum design and updates. Ensure courses align with industry trends for competitiveness.
- Supervise faculty, monitor student progress, and implement improvement strategies. Foster an environment for academic excellence and student success.
- Provide academic guidance in Information Systems. Address challenges, assist in practical career development.
- Implement mechanisms to maintain academic standards. Conduct program evaluations for continuous improvement.
- Foster a collaborative teaching environment. Coordinate faculty development for effective teaching.
- Manage course scheduling and optimize resource utilization. Coordinate with admin staff for logistical support.
- Establish relationships for internships, placements, and projects. Stay updated on industry trends for program relevance.
- Serve on academic committees. Contribute to university-wide initiatives.
- Stay informed about Information Systems education advancements. Encourage faculty participation in continuous learning.
- Effectively communicate program updates, policies, and crucial information. Maintain clear communication channels within the department.

02/01/2010 — 03/01/2011

Assistant Professor, Faculdade Presbiteriana Gammon (FAGAMMON), Brazil

Lavras

Address: *Praça Doutor Augusto Silva, 616 - Centro - Zip Code: 37200-154*

As a Lecturer in Information Systems at FAGAMMON (Faculty Gammon), the role was focused on the development and delivery of courses in programming, computer networks, and artificial intelligence, more especifically the following disciplines:

- Artificial Intelligence
- Algorithms and Data Structures
- Topics on Computer Networks
- Programming Laboratory

The following tasks and methods were used during the time I worked as an assistant professor in this institution:

- Design and update curriculum content for programming, computer networks, and artificial intelligence courses
- Integrate industry-relevant examples to enhance practical understanding.
- Conduct engaging lectures, seminars, and workshops for undergraduate Information Systems students
- Facilitate discussions and practical exercises to promote critical thinking and problem-solving skills
- Provide hands-on experience in programming, artificial intelligence and computer networks
- Develop assessments to evaluate students' comprehension
- Offer constructive feedback to support student learning and development
- Provide guidance and support to students in academic and professional endeavors.
- Mentor students in programming projects and research initiatives
- Keep abreast of advancements in computer science
- Infuse current industry practices into teaching methodologies
- Collaborate with colleagues to enhance the overall Information Systems program
- Engage in scholarly activities related to Information Systems
- Foster an inclusive and supportive classroom atmosphere that encourages active participation
- Create an environment conducive to exploration and application of information systems concepts

08/20/2009 — 12/22/2009

Assistant Professor, Sociedade Técnica Educacional de M.G., Brazil

Belo Horizonte

Address: *Rua Santa Cruz, 546 - Grajaú - Zip Code: 30430-430*

During my time at Sociedade Técnica Educacional, my role primarily involved lecturing on:

- Artificial Intelligence (AI)
- Operations Research

Here's a detailed description of the duties performed, tools used, skills employed, and other relevant details:

- Deliver comprehensive lectures on two key subjects: Artificial Intelligence (AI) and Operations Research, ensuring alignment with educational standards and industry trends
- Production of engaging and relevant learning materials, including lecture notes, presentations, and practical exercises
- Hands-on demonstrations and practical exercises to illustrate AI algorithms, optimization techniques, and problem-solving methodologies in Operations Research.
- Guidance and mentorship to students, addressing questions and concerns related to the course material.
- Development and application of assessments, including exams and projects

06/02/2008 — 12/09/2008

Informatics Teacher, Colégio Presbiteriano de Belo Horizonte, Brazil

Belo Horizonte

Address: *Rua José Rodrigues Pereira, 153 - Buritis - Zip Code: 30455-640*

As an Informatics Teacher at Colégio Presbiteriano, my primary goal was to make learning about computers and technology both fun and educational for kids aged 5 to 10.

- Educational Linux Environments
- Kid-Friendly Educational Packages to introduce concepts like mouse control, keyboarding, and basic computer navigation
- Linux-Based Learning Games
- Feedback and Encouragement
- Story-Based Learning

In summary, my approach centered around creating a playful and interactive learning environment for kids to explore the basics of informatics. By integrating educational packages and Linux-based tools, I aimed to demystify technology and instill a sense of curiosity and comfort with computers from an early age.

08/01/2007 — 07/31/2009

Assistant Professor, Centro Universitário UNA, Brazil

Belo Horizonte

Address: *Av. Afonso Vaz de Melo, 640 - Barreiro - Zip Code: 30640-070*

Lectured the following disciplines:

- Computer Architecture
- Systems Interoperability
- Computer Security
- High Availability Systems

Skills and activities:

- Assisted students in developing critical thinking skills through in-class debates and discussions
- Collaborated with colleagues to develop innovative approaches to teaching
- Utilized a variety of instructional methods and materials to meet the needs of diverse learners

EDUCATION

08/01/2014 — 09/04/2018

PhD Computer Science, Vrije Universiteit Amsterdam (VU), The Netherlands

Amsterdam

PhD Thesis Title: Contagious: Modeling the spread of behaviours, perceptions and emotions in social networks

Supervisors: Jan Treur, Aart van Halteren, Michel Klein (co-supervisor)

03/23/2007 — 09/30/2009

M.Sc. Computer Science, Universidade Federal de Minas Gerais (UFMG), Brazil

Belo Horizonte

Master Dissertation Title: Analysis of the problems of TCP in asymmetric networks and existing solutions

Supervisor: Dr. Dorgival Olavo Guedes Neto

03/01/2003 — 03/23/2007

B.Sc. Computer Science, Universidade Federal de Viçosa (UFV), Brazil

Viçosa