MÍRIAN SILVA

AI Engineer | MSc in Computer Science | AI Ethics, ML Fairness

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EDUCATION

Master's Degree in Computer Science
UFMG, Federal University of Minas Gerais

📅 Jan 2022 - In progress   📍 Belo Horizonte, Brazil

- Research Area: Artificial intelligence/Machine Learning, focusing on AI Ethics and fairness in machine learning.
- Dissertation Title: A Study of the Nuances of AI Fairness Development in Practice: A Framework for Designing Bias Mitigation Interventions.
- Advisers: Ana Paula Couto, Marisa Vasconcelos, Mariano Beiró
- The Graduate Program in Computer Science at UFMG is one of the country's oldest and most well-established in Computer Science in Brazil: ppgcc.dcc.ufmg.br, are evaluated by CAPES (the Brazilian Federal Agency for Support and Evaluation of Graduate Education) at level 7, which is the highest.

Research Fellow
Electrical Engineering and Computer Science, University of California, Berkeley

📅 Aug 2022 - Mar 2023   📍 Berkeley, California

- Research Fellow in the Algorithms and Inequality Research Group, supervised by Rediet Abebe, Ph.D.. Continuation of research studies from the visiting summer.

Summer Visiting Scholar
Electrical Engineering and Computer Science, University of California, Berkeley

📅 Jun 2022 - Aug 2022   📍 Berkeley, California

- Summer Visiting Scholar in the Berkeley Equity and Access in Algorithms, Mechanisms, and Optimization (BEAAMO) Research Group, part of Berkeley AI Research (BAIR). [Certificate]
- Working with auditing and evaluating algorithmic tools and evidentiary statistical software used in criminal legal systems. Supervised by Prof. Rediet Abebe, Ph.D.

Bachelor's Degree in Computational Mathematics
UFMG, Federal University of Minas Gerais

📅 Dec 2019   📍 Belo Horizonte, Brazil

- B.Sc. Degree based in Computer Science and Applied Mathematics. The degree combines a robust mathematical foundation with advanced computer science expertise, aiming to acquire knowledge to model real-world problems and employ computational methods effectively. Part of the Department of Computer Science and Mathematics.

EMPLOYMENT HISTORY

AI Engineer
IBM Research

📅 Oct 2021 – Present   📍 São Paulo & Remote, Brazil

- AI Engineer at the AI Models Team and MIT-IBM Watson AI Lab, working mostly with Foundation Models and AI development. Python programming, NLP research, Large language models (LLMs) applications, and research. The research publications can be found at the IBM Research - Mírian Silva website.
- Previous AI Engineer at the Advanced Prototyping Team, responsible for building AI prototypes from IBM Research's recent papers to client business.
- **Open-source project** (Initial author and active maintainer): ibm-generative-ai is a python SDK for IBM's Generative AI's offering.

Machine Learning Engineer
Experian LatAm DataLab

📅 Jan 2021 – Sep 2021   📍 São Paulo, Brazil

- Responsible for the life cycle of machine learning projects/models applied to financial solutions: credit score, credit decisions, and customer experience. Having worked directly with data engineers and data scientists exploring new solutions for Brazilian financial institutions and fintech.
- The main contribution in this role was building the risk score explainer to be deployed in production and developing the Serasa score 2.0, a credit score affecting the entire Brazilian population.
- Serasa Experian DataLab is a research and development unit developed by the Experian group.

Coursera Guided Projects Instructor
Coursera

📅 Sep 2020 – Aug 2021   📍 Remote

- Responsible for creating hands-on courses and content to be distributed on the Coursera e-learning platform. Projects with technical content about Machine Learning and Software Development. coursera.org/instructor/mirianfsilva

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Software Engineer: Technical Specialist
IBM Brazil

📅 Jan 2020 – Dec 2020   📍 Belo Horizonte, Brazil

- Full Stack Software Engineering at IBM Consulting Unit. Working with back-end and front-end applications using tools and technologies such as C#, .NET Core, JavaScript, and React. Apply agile methodologies and management with customers daily.

Software Developer Intern
IBM Brazil

📅 April 2019 – Dec 2019   📍 Belo Horizonte, Brazil

- Intern at IBM Consulting Unit. Software development deals mainly with tools and technology such as C#.NET, JavaScript, TypeScript, HTML/CSS, React and Angular Frameworks, MySQL, and Agile Methodologies.

Undergraduate Researcher: Hidden Markov Models and their Applications
Mathematics Department, UFMG

📅 2018 – 2019   📍 Belo Horizonte, Brazil

- Fellowship (1 year) | Scientific Initiation on Academic Research: Studies of theoretical machine learning models and their applications in Speech Recognition and Genome sequence analysis. Models using Unsupervised learning, Statistical methods, probabilities, and mathematical theory.
- Professor Advisor: Bhalchandra D. Thatte

Undergraduate Researcher: Graph Theory
Mathematics Department, UFMG

📅 2015 – 2016   📍 Belo Horizonte, Brazil

- Fellowship (6 months) | Scientific Initiation on Academic Research: Graph Theory & Mathematical Logic.
- Professor Advisor: Remy de Paiva Sanchis

RESEARCH AND DEVELOPMENT SKILLS SET: PROGRAMMING & MACHINE LEARNING

Python programming · Scikit-Learn libraries · Pandas · Numpy · PyTorch · MLOps · AI Ethcis · ML Fairness · Data Analysis · Data Visualization · (NLP) Natural Language Processing · Prompt Engineering · Foundation Models · Open-source contributions

RESEARCH WORK

📖 Master's Thesis
- **Mírian Silva**. (2024a). *A study of the nuances of ai fairness development in practice: A framework for designing bias mitigation interventions* (Master's Thesis, Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil). Available at http://hdl.handle.net/1843/78989.

📄 Poster Presentations
- **Mírian Silva**, Beiró, M. G., Vasconcelos, M., & Couto, A. P. (2024). *Bridging the gap between AI developers and social practitioners: A fairness framework for designing AI systems*, ICML 2024 Workshop on Humans, Algorithmic Decision-Making, Society: Modeling Interactions, and Impact, (Non-Proceeding. Accepted as a poster presentation, based on research from my master's dissertation.) Retrieved from https://humans-algs-society.github.io/papers/
- **Mírian Silva**. (2019). *Biological sequence analysis using profile hidden markov models*, NeurIPS 2019 Black in AI (BAI) Affinity Workshop, (Non-Proceeding. Accepted as a poster presentation, based on undergraduate research). Retrieved from https://www.blackinai.org/events

👥 Oral Presentations & Talks
- **Mírian Silva**. (2024b). Ai, academia, and industry: Bridging the gap between theory and practice. Women in Data Science (WiDS) Conference, Guayaquil @ ESPOL, Ecuador.

- **Mírian Silva**. (2021). Artificial intelligence, machine learning and deep learning: What is the difference between these areas and how algorithmic bias is generated? https://www.youtube.com/live/7vUX8FsjmAE?si=QsZkweZ2ZReMRkxZ&t=1459. [Online;] PrograMaria Encontros powered by Avanade, Machine Learning: Cases and practices.
- **Mírian Silva**, & Amom, L. (2021). Data centric ai and feature stores: What is the most data-centric development, aiming to correct problems, achieve good performances, focusing on the quality and selection of better data before even building and evaluating a model? https://www.youtube.com/live/qoF4yE2Vy9s?si=78Ebiu4hfhZHqwLZ. [Online; accessed 07-Oct-2021]. Serasa Experian DataLab.
- Sampaio, A. L., Sena, J., Fortunato, M., **Mírian Silva**, & Avila, S. (2021). Mladies: Women in machine learning. https://www.youtube.com/live/bELmkqJR22g?si=VKTGKmz7vMOZAC-G. [Online; accessed 09-Nov-2021]. Data ICMC, University of São Paulo (USP). retrieved from %5Curl%7Bhttps://www.icmc.usp.br/eventos/5555-mladies-mulheres-em-machine-learning%7D
- **Mírian Silva**, Camelo, T., & Rosselis, I. (2019). Fairness in algorithms: Importance of diversity and social impact. She's Tech Conference. Retrieved from https://conference2019.shestech.org/events/7plN5zF1MS1ApwzbULPR

SERVICE & OUTREACH

Black in AI Workshop Co-Chair. *Co-located with Conference on Neural Information Processing Systems (NeurIPS)*. Black in AI is a place for sharing ideas, fostering collaborations and discussing initiatives to increase the presence of Black people in the field of Artificial Intelligence.
Years in service @ NeurIPS as co-chair: 2024 - Vancouver, CA.; 2023 - New Orleans, LA.; 2022 - New Orleans, LA.; 2021 - Virtual Edition.; 2020 - Virtual Edition. Details here: blackinai.org

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Diversity & Inclusion Committee: Core Organizer of Black in NLP. *Conference of the North American Chapter of the Association for Computational Linguistics 2021*. D&I committee has taken several steps to strengthen the presence and bolster the visibility of affinity groups in NLP. Details here: 2021.naacl.org/blog/affinity-groups/

LatinX in AI Workshop Volunteer. *Co-located with 37° International Conference on Machine Learning (ICML) 2020*. Jul 2020. Virtual Edition.

Women in Machine Learning Un-Workshop Volunteer. Co-located with International Conference on Machine Learning (ICML) 2020. Jul 2020. Virtual Edition

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Vice President in Academic Directory. *Institute of Exact Sciences, Federal University of Minas Gerais*. 2017 - 2018. Belo Horizonte, Brazil. *Student counseling and support, especially for first-year students. Student affairs management includes all students of the Institute. Responsible for representing students ahead of the university board.*

President in Academic Directory of Computational Math. *Institute of Exact Sciences, Federal University of Minas Gerais*. 2015 – 2017. Belo Horizonte, Brazil. *Volunteer causes: Student counseling and support, especially for first-year students. Student affairs management.*

Member of the Board of Directors of the Institute of Exact Sciences. *Institute of Exact Sciences, Federal University of Minas Gerais*. 2015 – 2017. Belo Horizonte, Brazil Responsible for assisting and representing students' interests ahead of the board or professors and directors.

Founder of the Girls Support Girls Community. 2018. - **Lead organizer**. 2018 - 2022. Belo Horizonte, Brazil. Community leader, mentor, speaker, and event organizer. GSG Community it's a nonprofit and independent group that aims to support and increase the number of women in computer science. We work to put an end to gender inequality in tech industries, and it was founded at the Institute of Exact Sciences, UFMG.