MÍRIAN SILVA

AI Engineer | MSc in Computer Science

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EDUCATION

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

- Jan 2022 - Nov 2024 · 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. GPA: 3.5/4
- Professors 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, is evaluated by CAPES (the Brazilian Federal Agency for Support and Evaluation of Graduate Education) at level 7, which is the highest.

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

- Jun 2022 - Mar 2023 · Berkeley, California

- *(In-person) Jun 2022 - Aug 2022:* Summer Visiting Scholar in the Berkeley Equity and Access in Algorithms, Mechanisms, and Optimization (BEAAMO) Research Group, part of Berkeley AI Research (BAIR). Working with auditing and evaluating algorithmic tools and evidentiary statistical software used in criminal legal systems. Supervised by Prof. Rediet Abebe, Ph.D. [Attendance Certificate]
- *(Remote) - Aug 2022 - Mar 2023:* Research Fellow in the Algorithms and Inequality Research Group, supervised by Rediet Abebe, Ph.D.. Continuation of research studies from the visiting summer.

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

- Mar 2013 - Dec 2019 · Belo Horizonte, Brazil

- B.Sc. Degree 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.
- **Undergraduate Researcher Fellow**: *Hidden Markov Models and their Applications* (1 year): 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

EMPLOYMENT HISTORY

AI Engineer
IBM Research

- Oct 2021 – Present · São Paulo, Brazil & Remote, Worldwide

- AI Engineer at the AI Models Team. Collaborating closely with product managers and researchers to evaluate models, agentic systems, and users' generative AI applications.
- Responsible for leading innovation initiatives focused on proprietary models, known as Granite models, to improve quality and enterprise adoption, applying data analysis, prompt engineering, model performance evaluations, and developing algorithms/solutions to improve client and users' generative AI models applications.
- Previously worked with MIT-IBM Watson AI Lab, collaborating with students and staff researchers, primarily on research related to large language models (LLM) evaluations, NLP research, LLMs validation process, prompt engineering, performance improvements for distinct applications, and exploratory science research. **Research publications** can be found at the Google Scholar.
- Former AI Engineer at the Advanced Prototyping Team and ThinkLab Brazil Team member. Building prototypes to translate IBM's top published research into business.
- **Outstanding Open-source Project & Technical Award winner** (Initial author and maintainer until 0.2.6v): ibm-generative-ai is a Python SDK for IBM's Generative AI offering.
- **Skills set:** Python programming, machine learning, artificial intelligence, NLP, Transformers, Pytorch, LLMs evaluation & benchmarking, prompt engineering, fine-tuning, inference, generative AI, RAG, agentic AI, research, technical client engagement.

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.

- **Outstanding contributions:** Collaborating on building the Serasa score 2.0, a financial credit score that directly affects the entire Brazilian population; Responsible for building the risk score explainer (applying explainability and interpretability knowledge) to deploy into production with the score 2.0; Developer of ML pipelines and assisting in feature stores creation.
- **Skills set:** Python programming, MLOps, CI/CD workflows, building production and development pipelines, model deployments and monitoring, Airflow orchestration, feature stores development, and overall data-centric approaches.
- * Serasa Experian LatAm DataLab is the research and development (R&D) unit from the Experian group in Brazil.

Coursera Guided Projects Instructor

Coursera

📅 Sep 2020 – Aug 2021   📍 Remote, Worldwide

- 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.
- **Skills set:** C#, .NET Core, JavaScript, Typescript, React, Oracle Database. 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 projects are mainly directed by clients.
- **Skills set:** C#.NET, JavaScript, TypeScript, HTML/CSS, React and Angular Frameworks, MySQL, Oracle Database, and Agile Methodologies.

RESEARCH AND DEVELOPMENT SKILLS SET

Artificial Intelligence & Machine Learning

- **Core:** Machine Learning, Generative AI (GenAI), Large Language Models (LLMs), Prompt Engineering, Retrieval-Augmented Generation (RAG), AI Agents
- **Applied Areas:** Natural Language Processing (NLP), LLM Model Evaluation (benchmarks, metrics, eval pipelines), MLOps (training pipelines, monitoring), ML Fairness, AI Ethics

Programming & Frameworks

- **Languages & Foundations:** Python (Advanced), Mathematics for Machine Learning, Computer Science (CS) Algorithms
- **ML & DL Libraries:** PyTorch, TensorFlow, Scikit-learn, Transformers (Hugging Face)
- **Engineering & Tools:** Pandas, NumPy, Data Analysis & Visualization, SDK Development (APIs, client libraries), Unit & Integration Testing, Open-source Development, LangChain, LangFlow

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**, & Oliveira, A. (2025). O modelo certo para a tarefa certa: Estratégias de roteamento para llms de código aberto. [Online; accessed 10-Jun-2025]. Bradesco Inovabra, IBM Research. Retrieved from https://videos.netshow.me/t/SGjGIdyCOis

- **Mírian Silva**. (2024b). Ai, academia, and industry: Bridging the gap between theory and practice. Women in Data Science (WiDS) Conference, Guayaquil @ ESPOL, Ecuador. Retrieved from https://www.youtube.com/live/LNZ4DhiABYM?si=zctb8ohjQo5IQCZ7&t=1300
- **Mírian Silva**. (2021). Artificial intelligence, machine learning and deep learning: What is the difference between these areas and how algorithmic bias is generated? [Online;] PrograMaria Encontros powered by Avanade, Machine Learning: Cases and practices. Retrieved from https://www.youtube.com/live/7vUX8FsjmAE?si=QsZkweZ2ZReMRkxZ&t=1459
- **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? [Online; accessed 07-Oct-2021]. Serasa Experian DataLab. Retrieved from https://www.youtube.com/live/qoF4yE2Vy9s?si=78Ebiu4hfhZHqwLZ
- Sampaio, A. L., Sena, J., Fortunato, M., **Mírian Silva**, & Avila, S. (2021). Mladies: Women in machine learning. [Online; accessed 09-Nov-2021]. Data ICMC, University of São Paulo (USP). retrieved from https://www.icmc.usp.br/eventos/5555-mladies-mulheres-em-machine-learning
- **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

👥 Research Collaborations (Publications)

- Polo, F. M., Xu, R., Weber, L., **Mírian Silva**, Bhardwaj, O., Choshen, L., … Yurochkin, M. (2024, December). Efficient multi-prompt evaluation of LLMs. In *The thirty-eighth annual conference on neural information processing systems*. Retrieved from https://openreview.net/forum?id=jzkpwcj200
- Shnitzer, T., Ou, A., **Mírian Silva**, Soule, K., Sun, Y., Solomon, J., … Yurochkin, M. (2024). Large language model routing with benchmark datasets. In *First conference on language modeling*. Retrieved from https://openreview.net/forum?id=Zb0ajZ7vAt
- Shnitzer, T., Ou, A., **Mírian Silva**, Soule, K., Sun, Y., Solomon, J., … Yurochkin, M. (2023, December). LLM routing with benchmark datasets. In *Neurips 2023 workshop on distribution shifts: New frontiers with foundation models*. Oral presentation. Retrieved from https://openreview.net/forum?id=k9EfAJhFZc

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 (NAACL) 2021*. The D&I committee has taken several steps to strengthen the presence and visibility of affinity groups in NLP. Details here: 2021.naacl.org/blog/affinity-groups/

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

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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.*

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President in the 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.*

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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, professors, and directors.

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Founder of the Girls Support Girls Community. 2018. - **Lead organizer**. 2018 - 2022. Belo Horizonte, Brazil. Community leader, mentor, speaker, and event organizer. GSG Community is 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.