

# Breno Matos

PhD researcher in AI-driven harms, auditing, and sociotechnical systems

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## EDUCATION

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- **Max Planck Institute for Informatics** Saarbrücken, Germany  
*PhD in Computer Science Area: AI-driven Harms, Scientific Integrity, and Sociotechnical Systems* August 2025 - Currently  
**Early work:** Early-stage research on auditing hallucinated references in AI-generated scientific text, with a focus on empirical measurement of citation reliability in computer science.
- **Federal University of Minas Gerais (UFMG)** Belo Horizonte, MG, Brazil  
*M.Sc. in Computer Science. Area: Natural Language Processing. Average Grade: 97/100* May 2021 - August 2024  
Thesis awarded a Google Latin America Research Award
- **Federal University of Minas Gerais (UFMG)** Belo Horizonte, MG, Brazil  
*B.Sc. in Computer Science Area: Fairness in Information Retrieval. Average Grade: 81/100* 2017 - March 2021

## ACADEMIC EXPERIENCE

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- **LATIN & LOCUS labs** Belo Horizonte, Brazil  
*M.Sc. Researcher* May 2021 – October 2024
  - Researched misinformation and radical communities in online platforms, with a focus on auditing, interpretability, and empirical evaluation of moderation systems. Proposed a novel misinformation auditing task and released the first datasets and baselines.
  - Studied virality and re-popularization dynamics of music content on TikTok.
- **DataCommons Brazil (partnership between Google and UFMG)** Belo Horizonte, Brazil  
*Research Development Software Engineer* September 2023 – October 2024
  - Built large-scale data collection pipelines using Playwright to gather public-sector data from 2,000+ Brazilian government sources as part of Google's Data Commons initiative.
- **Data Science Lab (DLAB) at Swiss Federal Institute of Technology in Lausanne** Lausanne, CH  
*Research Assistant - Summer@EPFL Intern* July 2022 - October 2022
  - Designed and executed large-scale auditing experiments using 100+ automated agents to evaluate online recommendation systems and assess potential radicalization pathways. Our findings pointed to it not being the case.
- **Social Computing Lab (LOCUS) at DCC/UFMG** Belo Horizonte, Brazil  
*Research Assistant* October 2017 - February 2021
  - Collected and analyzed early-pandemic misinformation shared across WhatsApp and Telegram, producing weekly reports used by journalists for fact-checking.
  - Applied complex network analysis to study political governance, including homophily patterns in US House voting networks and backbone extraction in dense graphs.

## INDUSTRY EXPERIENCE

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- **Kunumi** Belo Horizonte, Brazil  
*Data Scientist* July 2024 - August 2025
  - Led the development of an in-house credit analysis specific LLM.
  - Developed automated corporate credit analysis systems using state-of-the-art LLMs, including semantic search (FAISS), feature extraction, summarization, and agent-based workflows.
- **Public Prosecutor's Office of Minas Gerais (MPMG) at DCC/UFMG** Belo Horizonte, Brazil  
*Research Development Software Engineer* January 2020 - July 2025
  - Developed conversational text-to-SQL systems using LLaMA and CodeLLaMA to enable natural-language access to institutional databases.
  - Designed and implemented a crawler configuration software. Utilized expertise in web scraping to architect solutions for complex data extraction needs. The software allowed the configuration of more than 5000 crawlers to target websites.
  - Developed social media monitoring tools that allowed public prosecutors to gather data for 100+ daily Instagram profiles and monitor 1000+ WhatsApp and Telegram groups. These tools are used to aid investigations and prosecutions by MPMG.
- **Brazilian Institute of Geography and Statistics (IBGE) at DCC/UFMG** Belo Horizonte, Brazil  
*Full Stack Developer* October 2020 - March 2021

- Led the website development for a novel platform that aided IBGE's analysts in calculating economic metrics such as inflation based on product availability online. The platform was built with Django and Reactjs, hosted information about 10,000+ products crawled online, and provided insights on trends and aggregated data analyses.

## TEACHING AND SERVICES

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- **Reviewer** Remote
  - ACM Transactions on Social Computing - 2024
  - ICWSM - 2026
- **Computer Science Department (DCC) at UFMG** Belo Horizonte, Brazil
  - Head Teaching Assistant* *March 2022 - July 2022*
  - Responsible for overseeing 80+ students' semester projects and weekly activities for the Introduction to Data Science course at UFMG. Work included mentoring students and answering questions related to the coursework.

## SKILLS SUMMARY

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- **Research Focus:** AI Auditing, Responsible AI, Sociotechnical Systems, Empirical Evaluation
- **Platforms and Programming:** Python, C/C++, JavaScript, SQL, Bash, Web
- **Tools and Frameworks:** PyTorch, Docker, Jenkins, CI/CD, Git, Elasticsearch, HuggingFace, Django, React.js, NetworkX, Jupyter, Transformers, Sklearn, Playwright
- **Languages:** Portuguese (Native), English (Fluent), French (Beginner)

## SELECTED PUBLICATIONS GOOGLE SCHOLAR LINK

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- **Breno Matos**, Francisco Galuppo, Rennan C. Lima, Flávio Figueiredo “**I've Heard This Before: Initial Results on Tiktok's Impact On the Re-Popularization of Songs.**” – 1st Latin American Music Information Retrieval (LAMIR) workshop, 2024.
- **Breno Matos**, Rennan C. Lima, Jussara M. Almeida, Marcos A. Gonçalves, Rodrygo Santos, “**Intellectual Dark Web, Alt-lite and Alt-right: Are They Really That Different? A Multi-Perspective Analysis of the Textual Content Produced by Contrarians**” – Social Network Analysis and Mining Journal, Springer.
- **Breno Matos**, Rennan Lima, Jussara M. Almeida, Rodrygo L.T. Santos, & Marcos Gonçalves - “**On the Presence of Abusive Language in Mis/Disinformation**”, The 13th International Conference on Social Informatics. SocInfo '22
- Carlos Henrique Gomes Ferreira, Fabricio Murai Ferreira, **Breno Matos**, and Jussara Marques de Almeida. – “**Modeling Dynamic Ideological Behavior in Political Networks**”. The Journal of Web Science 1 (2019)
- Carlos Henrique Gomes Ferreira, **Breno Matos** & Jussara M. Almeida - “**Analyzing Dynamic Ideological Communities in Congressional Voting Networks**”. Social Informatics: 10th International Conference, SocInfo 2018
- Daniel Kansaon, Michele A. Brandão, Julio C.S. Reis, Matheus Barbosa, **Breno Matos**, Fabrício Benevenuto - “**Mining Portuguese Comparative Sentences in Online Reviews**”. XXVI Brazilian Symposium on Multimedia and the Web (2020)
- **Breno Matos**, Fabrício Benevenuto, Ana P.C. Da Silva - “A Nudez como Estereótipo de Beleza através das Lentes do Instagram” – **english: [Nudity as a Beauty Stereotype through the Lens of Instagram]**. X Brazilian Workshop on Social Network Analysis and Mining, (2021)
- **Breno Matos**, Carlos H. G. Ferreira, Jussara M. Almeida - “Analizando a governabilidade presidencial a partir de padrões de homofilia na Câmara dos Deputados: Estudos de Casos no Brasil e nos EUA” – **english: [Analyzing presidential governability based on homophily patterns in the Chamber of Deputies: Case Studies in Brazil and the USA]**. In: 7th Brazilian Workshop on Social Network Analysis and Mining (BraSNAM), 2018

## AWARDS AND RECOGNITIONS

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- **Google Latin America Research Award** Belo Horizonte, BR
  - Research grant structured as an unrestricted gift - 8,500 USD/42,000 BRL* *December 2023*
- **ICWSM-24** Virtual
  - Virtual Attendance Scholarship Award* *May 2024*
- **Best Short Paper** Virtual
  - X Brazilian Workshop on Social Network Analysis and Mining, BraSNAM* *2021*
- **Best Full Paper Nominee** Saint Petersburg
  - Social Informatics: 10th International Conference, SocInfo* *2018*