Gabriel Bromonschenkel

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Education

Federal Institute of Espírito Santo (IFES) — Serra, Brazil
M.Sc. in Applied Computing (Top 5% Latin America higher education institution in Webometrics) — *2023 – 2025*

- **Thesis:** Cross Native–Translated Evaluation of Transformer-Based Vision Models for Brazilian Portuguese Image Captioning.
- **Supervisor:** Hilário Tomaz Alves de Oliveira, Ph.D., and Thiago Meireles Paixão, Ph.D.
- **Note:** Completed degree part-time while working as a full-time Data Scientist.

Federal University of Espírito Santo (UFES) — São Mateus, Brazil
B.Sc. in Computer Engineering (Top 8% World higher education institution in EduRank) — *2017 – 2022*

- **Final Project:** Graph Neural Networks for Recommendation Systems.
- **Supervisor:** Leonardo José Silvestre, Ph.D.

Research Experience

Imaging, Vision and AI Laboratory (LIVIA) - ÉTS — Montreal, Canada
Visiting Researcher (Top 6 Canada computer science institutions for computer vision in CSRankings) — *Sep 2025 – Oct 2025*

- Researched Vision-Language Models (VLMs) at the École de Technologie Supérieure (ÉTS).
- Optimized 7B+ parameter VLMs, such as Llama and Phi-3 for vision, using LoRA, QLoRA, and 4-bit Quantization.
- **Supervisor:** Alessandro Lameiras Koerich, Ph.D.

Computational Intelligence Laboratory (LAICSI) - IFES — Serra, Brazil
AI Research Assistant — *Sep 2023 – Dec 2025*

- Led research on multimodal Transformers for Portuguese; analyzed translation bias in multimodal training.
- **Supervisor:** Hilário Tomaz Alves de Oliveira, Ph.D., and Thiago Meireles Paixão, Ph.D.

University of São Paulo (USP) — São Paulo, Brazil
Undergraduate AI Researcher (Top 0.4% World higher education institution in EduRank) — *Jul 2020 – Dec 2021*

- Researched the union of ML and Ontologies for psychiatric analysis at Brazil's top-ranked university.
- **Supervisor:** Wilian Hiroshi Hisatugu, Ph.D., and Maria das Graças da Silva Teixeira, Ph.D.

Federal University of Espírito Santo (UFES) — São Mateus, Brazil
Undergraduate AI Researcher — *Aug 2019 – Aug 2021*

- Applied Convolutional Autoencoders for Smart Grid Load Identification.
- Investigated the junction of Convolutional Neural Networks and Extreme Learning Machines for face recognition.
- **Supervisor:** Leonardo José Silvestre, Ph.D.

Publications

A Comparative Evaluation of Transformer-Based Vision Encoder-Decoder Models for Brazilian Portuguese Image Captioning — SIBGRAPI 2024
G. Bromonschenkel, T. M. Paixão, H. Oliveira — *Accepted / Published*

- SIBGRAPI is the premier Brazilian Conference on Graphics, Patterns and Images (Top 1 in Latin America). DOI: https://doi.org/10.1109/SIBGRAPI62404.2024.10716325.

Brazilian Portuguese Image Captioning with Transformers: A Study on Cross-Native-Translated Dataset — JBCS 2025
G. Bromonschenkel, A. L. Koerich, T. M. Paixão, H. Oliveira — *Accepted*

- Journal of the Brazilian Computer Society (JBCS) is a high-impact journal covering state-of-the-art Computer Science research in Brazil. DOI: https://doi.org/10.48550/arXiv.2602.00393.

Professional Experience

Banco do Brasil (consultant by Stefanini)   Brasília, Brazil
Data Scientist (Largest public bank in LATAM)   Apr 2023 – Present
- Designed a clustering model for talent discovery; doubled internal IT hiring capacity.
- Engineered end-to-end OCR pipeline for fraud detection, increasing audit coverage by 15%.
- Architected a recommendation system for the investment news platform.
- Implemented causal inference and multi-armed bandits methods for debt renegotiation experiments.

Tok&Stok   São Paulo, Brazil
Data Scientist (Largest home & furniture company in Brazil)   Jun 2022 – Mar 2023
- Improved a Slack bot feature for anomaly detection, reducing business complaints by 30%.
- Developed a Slack bot feature for Power BI automation, lowering costs by removing paid licenses.
- Integrated CI/CD for BI, enabling versioning and automated rollbacks for 75% of company reports.
- Managed data marts in Azure Analysis Services, ensuring >90% data integrity during a complex business transitions.

Tok&Stok   São Paulo, Brazil
Data Science Intern   Oct 2021 – May 2022
- Conducted data modeling tasks to feed BI reports and an app to rank sellers' performance.
- Built reports and data analysis about customer budgets, sales performance, store performance, and product discounts.
- Pioneered regression strategies to solve sales forecasting and to analyze goal metrics.

Volunteer

Computer Engineering Academic Center (CAEC) - UFES   Sao Mateus, Brazil
President Director   Dec 2020 - Dec 2021
- CAEC is a university student entity. The roles as CAEC president include: guiding the computer engineering students, organizing events, looking for partners, leading the academic center representatives, and working with the Computer and Electronic Department (DCEL) on behalf of students.

CompTalk - UFES   Sao Mateus, Brazil
Event Organizer   2021
- CompTalk is an event where IT speakers discuss their careers and university experiences. The tasks as an organizer include setting up the stage (presentation environment), inviting panelists, making partnerships, and planning the event.

Orienta Covid ES HUCAM UFES   Vitoria, Brazil
Operational Director   Apr 2020 - May 2021
- It is a project founded by professors/doctors from the University Hospital of the Federal University of Espírito Santo (UFES). Orienta Covid ES HUCAM UFES provides remote advisory about COVID-19 to people in general. Roles as an operational director: providing IT support and managing the telecommunication tools.

Competitive Programming Training - UFES   Sao Mateus, Brazil
Internal Volunteer   Feb 2020 - Dec 2020
- The Competitive Programming Training is an extension project of the UFES, campus Sao Mateus, destined for students' preparation for competitive programming contests. In this project, we organized contests, and studies focused on data structures, graph theory, and algorithms. The group engaged in famous contests such as the ICPC International Collegiate Programming Contest and Google Hashcode.

EEEFM: "Nair Miranda" Student Assistance Program   Fundão, Brazil
Physics and Math Tutor   2016
- The Student Assistance Program at EEEFM: "Nair Miranda" High School is a teaching program where volunteers with a strong background in specific subjects assist the learning of students at EEEFM: "Nair Miranda" High School.

Federal Institute of Espírito Santo (IFES) Student Assistance Program   Aracruz, Brazil
Physics Tutor   2016
- The Student Assistance Program at IFES is a teaching program where students with a strong background in specific subjects assist the learning of other students, and provide support to professors in institute activities from IFES.

Honors and Awards

- **Finalist (1st in Scoring):** Data Battle by Itaú Bank (Largest bank in LATAM), 2022.
- **Ranked 4th:** USP Programming Marathon (SEMCOMP), 2021.
- **Ranked 2nd:** Google Hash Code (Stanford Hub), 2021.
- **Ranked 10th (1st in São Mateus UFES campus)**: Computers Programming Tournment 18 (TOPCOM 18), 2021.
- **Honorable mention:** Programming Marathon ICPC South America/Brazil First Phase, 2020.
- UFV SI (25th Computer Week) Programming Marathon competitor, 2020.
- Rocketseat Experience I (Panels, Workshops, and Hackathon) competitor and listener, 2019.

Solutions and events description in https://github.com/gabrielmotablima/CP000–competitive-programming.