Gabriel Abílio

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About me

Born in Manhuaçu, Minas Gerais, Brazil, from an early age I was passionate about the search for knowledge. As a primary and secondary school student, I enrolled at Colégio Losango - Manhuaçu, where I delved deeper into natural sciences, discovering my predilection for them. While still at school, I participated in Scientific Olympiads, through which I entered university, which was the beginning of my academic career. I am currently enrolled in Information Systems at the Federal University of Minas Gerais (UFMG), however, I was enrolled in Physics at the State University of Campinas (Unicamp) for two years. Furthermore, I participated in the UNIGOU Remote Program at the University of Hradec Králové, carrying out academic collaboration in Computer Science at that university, having researchead Artificial Intelligence at the Faculty of Informatics and Management, Department of Information Technologies. I also carried out other external scientific activities, such as an internship at CNPEM (National Center for Research in Energy and Materials), where I studied Nanotechnology, working on the Sirius electron accelerator, and participating in the rocketry team at UNICAMP (ANTARES), working in the Electronics sector. In addition, I have already provided voluntary academic tutoring in Applied Physics I to undergraduate students. I also regularly participate in scientific events, both participating in them and presenting work. I have interests and skills in various programming languages (C, C++, Python, Julia), Data Science, Artificial Intelligence and Software Development in such areas. Today I am part of the FabNS software team, researching software development in C++, working with technologies such as C++, Qt, Git, OOP, Linux and CMake.

Academic education

2010-2021	Primary and Secondary School	Colégio Losango – Manhuaçu/MG
2022-2024	B.Sc. Interrupted Major in Physics	State University of Campinas (Unicamp)
2024 -	B.Sc. Majoring in Information Systems	Federal University of Minas Gerais (UFMG)

Scientific projects

2022-2023	Internship at CNPEM (National Center for Energy and Materials Research): Design and fabrication of nanostructures for analysis via s-SNOM in the infrared and terahertz ranges. Summary: In this project, a detailed experimental study will be carried out on the fabrication and subsequent s-SNOM characterization of 2D heterostructures based on lamellar materials (h-BN, MoO3 and Talc) as well as their lithography in the form of resonators. The fabrication and assembly of the nanostructures will be carried out in the Two-Dimensional Materials Laboratory (L2D) in tune with the s-SNOM instrumentation in operation on Sirius's IMBUIA line. Eventually, more sophisticated structures will be produced via nano thinning by "Focused Ion Beam" (FIB) at the Micrometric Samples Laboratory (LAM) at the National Synchrotron Light Laboratory (LNLS).
2023-2024	Member of the rocketry team (ANTARES) at State University of Campinas (Unicamp), working in the electronics sector.
2024-2024	Academic Collaboration at University of Hradec Králové: Identification and Mitigation of Threats and Vulnerabilities of Modern Machine Learning Systems. Summary: The work will examine various aspects of the harmful potential of artificial intelligence, that is, the approaches and procedures of artificial intelligence that can be the cause of attacks, and the possibilities of prevention and defence against them. Many of the possible approaches to prevent and defend against vulnerabilities from malicious AI applications must also be based on AI approaches and practices. The research will therefore be focused on both the aforementioned aspects of artificial intelligence applications and on solving typical problems of vulnerabilities in artificial intelligence systems.
2024-	Software Development at FabNS, working with the Software Team, producing AI related tools. The major competencies are: Qt, Git, C++, Linux, CMake and OOP (Object Oriented Programming).

Presentation of scientific works

2023	FERREIRA, G. A. B.; MAZZOTTI, V. ; MARTELLO FILHO, L. V. B. ; BARRETO, V. V. ; FREITAS, R. O ; BARCELOS, I. D . Exciton-polariton imaging in TMD's via s-SNOM in the visible spectrum. 2023. (Poster presentation) - Unicamp's Physics Week

Awards

2019	First place overall (High School) - Colégio Losango Manhuaçu. Gold Medal.
2020	Medalist at the Brazilian Astronomy and Astronautics Olympiad. Silver Medal.
2021	Medalist at the Brazilian Astronomy and Astronautics Olympiad. Gold Medal.
2021	$10,000 scholarship, Minerva Schools at KGI (Minerva University). Scholarship.

Scientific events

2023	Autumn Meeting of the Brazilian Physical Society - EOSBF 2023.
2023	PhenoBR.
2023	2nd Machine Learning School @Ilum.
2024	MiniDebConf 2024 Belo Horizonte.

Other information

It is worth mentioning some additional certifications: Completion of the Portuguese language course - Kumon, Advanced level of the Mathematics course - Kumon, Cambridge First Certificate in English (Grade A), Introduction to Computer Science with Python - USP, Data Wrangling with Python Specialization (includes Data Collection and Integration, Fundamental Tools of Data Wrangling, Data Processing and Manipulation, Data Wrangling with Python Project and Data Understanding and Visualization) - University of Colorado Boulder, Introduction to Machine Learning - Duke University. Additionally, I provided voluntary academic tutoring of Applied Physics I for undergraduates.