

# Hugo Alexandre

International Master's degree in Computational Physics, Master's degree in Subatomic Physics & Cosmology and Magister's degree in Physics

## PhD Application - OCA



### CONTACT



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### COMPUTER SKILLS & TOOLS



Github

### LANGUAGES



: Native Speaker



: B2/C1 Level

### Academic Education and Diplomas

**Master's degree in Computational Physics - UMLP (Besançon), 2024-**  
Specialization in Machine Learning and Numerical Simulations.

**Master's degree in Subatomic Physics & Cosmology - UGA (Grenoble), 2021–2023**  
Specialization in Cosmology, Astroparticles and Gravitational Waves.

**Magister's degree in Physics - UGA (Grenoble), 2021–2023**  
Specialization in Research and Mathematics of General Relativity.

**Bachelor's degree in Physics - UGA (Grenoble), 2018–2021**

**Research Passport University diploma - UGA (Grenoble), 2018–2019**

### Professional and Additional Experiences

**M2 Internship at the OCA/ARTEMIS (Nice), 02/2025 -**  
*Inferring a Model of the Galaxy with Compact Binaries Observed by LISA*  
Supervised by Dr. Natalia KORSAKOVA  
Contributing to the development of methods for inferring a model of the galaxy based on galactic binaries gravitational wave observations from the future LISA mission.

**Visit to the Virgo Gravitational Wave Interferometer, 09/2024**  
I visited the Virgo interferometer for a documentary filming, guided by GW physicist Jérôme Degallaix. Having studied the detector, I was well-positioned to contribute and discuss its design and key characteristics with researchers.

**Physics-Chemistry Teacher, 09/2023 - 08/2024**  
I worked as a full-time physics-chemistry teacher at a middle-school. I applied concepts from my studies to create numerical simulations, that provide more intuitive explanations.

**YouTube Video Scriptwriter, 07/2023 -**  
I write video scripts for Zebrolloss (ESA partner) on astrophysics/cosmology and quantum mechanics and assist in documentary production. I also create simulations of physical phenomena, such as black hole dynamics, quantum tunneling etc. for his videos.

**M2 Internship at the LAPP (Annecy), 02/2023 - 07/2023**  
*Influence of Cosmology on the Gravitational Wave Background of Compact Binaries*  
Supervised by Pr. Tania REGIMBAU  
Studying the impact of cosmological parameters ( $H_0$ ,  $\Omega_M$  etc.), dark energy models, and star formation rates on the SGWB from CB within  $\Lambda$ -CDM and non- $\Lambda$ -CDM models.

**M1 Internship at APC Laboratory (Paris), 06/2022 - 08/2022**  
*The Cosmic-Ray Boron-over-Carbon Ratio Observed by Voyager 1 Probe*  
Supervised by Pr. Stefano GABICI  
Studied the cosmic-ray spallation of C, N, and O with protons in the interstellar medium and computed the Boron-to-Carbon abundance using analytical and numerical methods.

**Participant in the 9th French Physicists' Tournament, 02/2022**  
As a "Team Member", I participated in the physics tournament held at ENSTA in Paris. During the event, I presented a research topic in English to a jury and opposing schools.

**Creation and management of the 1minute2physique (Tiktok), 01/2022 -**  
Produce videos featuring numerical simulations, mathematical demonstrations, physics fun facts, and explanations of fundamental concepts in physics.