Ilder Israel Salgado Marin

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Summary

I am a Undergraduate Physics Student at Universidad Nacional Autónoma de Mexico. My main area of study is mechanics, with applications in physics and engineering. I have a strong interest in classical mechanics, fluid mechanics, thermodynamics, computational fluid dynamics (CFD), and machine learning. I currently work at the Fluid Mechanics Laboratory of the Faculty of Sciences at UNAMa and laser optics laboratory of UNAM

Experience

Laboratory intern in laser optics July 2024 - present

Laboratory intern at the Laser Optics laboratory at UNAM, under the supervision of Dr. Edna M. Hernández, conducted research on optical methods for measuring viscosity in complex fluids. Developed experiments, theoretical models, as well as numerical models for their study.

Laboratory intern in fluids June 2025- present

I attended the School of Astrophysics at the Institute of Radio Astronomy and Astrophysics in the city of Morelia, where I learned theoretical foundations of astrophysics, big data, and radio astronomy techniques. I developed a particular interest in hydrodynamic methods and turbulence in the interstellar medium, as presented by experts in these fields..

School in astrophysics, Morelia June 2025

Intern at the Fluid Mechanics Laboratory of the Physics Department at UNAM, under the supervision of Dr. Francisco Mandujano. Focused on the theoretical study of vorticity and viscous flow dynamics using simulations and CFD tools, aiming to understand their behavior and fluid–fluid as well as fluid–solid interactions.

Projects

Lectures on Elasticity and Fluid Mechanics

I am developing lecture notes in Spanish on continuum mechanics, with a focus on elasticity, fluid mechanics, and classical mechanics. The project aims to provide a comprehensive theoretical resource dedicated to these topics while also emphasizing problem-solving approaches for Analytical Mechanics courses at the Faculty of Sciences. Progress and updates on these notes are available on my website.

Education

2022 - present PhD (Subject) at **Autonomous National University of Mexico**

Skills

Python and C programming	Knowledge in the development of computational numerical methods for solving partial differential equations and performing dynamic simulations..
Electronics and arduino	Basic knowledge of circuit assembly and the creation of analog and digital electronic setups using Arduino
Lecturer	Experience as a lecturer at a regional high school and as a tutor for physics students during my undergraduate studies, covering topics in general physics, mechanics, electromagnetism, and differential geometry. I also have strong skills in preparing academic documents in physics and mathematics using LaTeX