

# Emmanuel Avila Vargas

Physicist



## About me

I am a physicist and student of a Master's degree in computer sciences. I consider myself as a very curious, creative, responsible and assertive person.

## Contact

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Avilem

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## Research areas

Teaching (Basic and advanced Physics and Mathematics) · Data Analysis · Gravitation · Computer Sciences · Probability and statistics · Artificial Intelligence.

## Interests

Gravitation · Nuclear physics · Mathematics · Differential Geometry · Programming · Artificial intelligence · Web development · Technological innovation · Scientific outreach.

## WORK EXPERIENCE

2021–2023

### Asesor Externo Especializado en Matemáticas

SEJ · Guadalajara.

In this job position at Secretaría de Educación Jalisco (SEJ), I taught advanced math to elementary and middle school students, so they could be ready for contests and Math Olympiads in México



2023–Currently

### Teaching Assistant

TECNOLÓGICO DE MONTERREY · Guadalajara

Research and academic support to teachers and researchers.



## STUDIES

2022

### Fis

Bs. IN PHYSICS · CUCEI - Universidad de Guadalajara

Guadalajara, Jalisco, MX

2023

### M.C.

MS. IN COMPUTER SCIENCE - TEC DE MONTERREY ·

Guadalajara, Jalisco, MX.



## PROGRAMMING SKILLS

HTML, CSS

L<sup>A</sup>T<sub>E</sub>X

Python

R

PHP, Javascript

MATLAB

SQL

## CERTIFICATIONS

2021 Introduction to Python programming

2023 Full-stack Developer from Liderly (TEC de Monterrey).

## PAPERS

2023 *Emission of spacetime waves from the partial collapse of a compact object*, Journal of Mathematical Physics (AIP Publishing). DOI: <https://doi.org/10.1063/5.0155046>

## LANGUAGES

|         |    |                         |
|---------|----|-------------------------|
| English | B2 | TOEFL ITP Certification |
| Deutsch | A1 |                         |
| Spanish | C2 | Mother Tongue           |

## TALKS

Oct. 2023 "El Universo sobre un caparazón", en: *Evento de Puertas Abiertas IAM. Semana Mundial del Espacio* en Guadalajara, Oct. 2023.

## FINISHED PROYECTS

2023 *Signal processing in electromyography*, I participated in several signal analysis tasks in a project for the School of Health and Medicine and the Cyber-physics system laboratory of Tecnológico de Monterrey, Campus Guadalajara. In charge of Dr. Rita Fuentes.

2023 *Electric conductivity in a NaCl media*, academic advisor for the project of the undergraduate student: Andrea Arroyo Terrón, at Universidad de Guadalajara (Jalisco, México).

## COLLABORATION

Aug. 2021 Member of the Data Analysis in Gravitational Waves Group from Guadalajara, Jalisco, México. <http://www.gravitationalwaves.mx/index.html>

Jan. 2024 Member of the LSC (LIGO Scientific Collaboration).

## CURRENT PROYECTS

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- 2024** *About the correlation of the nuclear density and the velocity of electrons during Bremsstrahlung effect*, academic advisor for the project of the undergraduate student: Alfred Maximiliano Espinoza Jiménez, at Universidad de Guadalajara (Jalisco, México).
- 2024** *Parameter estimation of Core Collapse Supernovae using Markov Chain - Monte Carlo algorithms and LIGO data*, Thesis project
- 2024** *Bayesian model selection for Binary Black Hole gravitational waves approximants*. Almost finished paper.