

Emilio Villa Cueva [INCOMPLETE cv]

✉ evillacueva@gmail.com
📄 github.com/villacu

More about me: villacu.github.io

EDUCATION

- **Universidad de Guanajuato** Guanajuato, México
Bachelor in Engineering Physics; GPA: 9.79 *August 2017 - July 2021*
Important Mathematics Courses: Vector Calculus, Linear Algebra, Probability and Statistics, Differential Equations and Complex Variable
Important Computer Science and Electrical Engineering courses: Programming, Object Oriented Programming, Numerical Methods, Statistical Learning, Selected Topics on Artificial Intelligence, Algorithms and Data Structures, Microcontroller Architecture, Measurement and Instrumentation
Important Physics courses: Classical Mechanics, Quantum Mechanics, Electromagnetism, Thermodynamics, Statistical Mechanics

RESEARCH EXPERIENCE

- **Mathematics Research Center (CIMAT)** *June 2021 - Present*
Research Assistant.
Developing deep learning models based on the BERT architecture for the task of classifying aggressive language and hate-speech in (spanish) social media through adversarial training and domain adaptation techniques. Under supervision of Dr. Adrian Pastor Lopez-Monroy and Dr. Fernando Sanchez Vega.
- **University of Guanajuato** *January 2020 - Present*
Research Assistant. Division of Sciences and Engineering (DCI)
Worked on the design and construction of a low-cost meteorological station in the DCI-UG campus, initially to measure solar irradiance in the area. This project was funded by CONACYT and is being carried out under the supervision of Dr. Modesto Sosa Aquino.

SKILLS SUMMARY

- **Programming Languages.:**
 - Python
 - R
 - C
- **Platforms:**
 - **OS:** Linux, Windows
 - **Microcontrollers:** Arduino, Texas Instruments, PIC Controllers
- **Soft skills:**
 - Problem solving.
 - Creativity.
 - Adaptability.

LANGUAGES

- **Spanish:** Native
- **English:** Advanced. (TOEFL iBT score 112/120)
- **German:** Basic. (A2)

TECHNICAL EXPERIENCE

Research Projects

- **Forecasting short-term Solar Irradiance in the city of León:**
Implemented a time series forecasting model based in a transformer architecture for the task of predicting short-term Global Horizontal Irradiance. This model aims to work with the weather station to be constructed in the DCI-UG campus (September 2020 - December 2020) .
- **Simulating confined brownian motion under different conditions:**
As part of the Soft-Matter Laboratory in DCI-UG, worked in designing and running simulations of a 2-dimensional particle under brownian motion confined in a box, measuring the effects of moving the box under different patterns and time regimes. I worked under Dr. Erick Sarmiento Gomez at the University of Guanajuato (June 2020 - January 2021)

Technical Projects

- **Magnetic Induction Brake Prototype:** Contactless braking system that uses parasitic currents to reduce a disk velocity, built as part of the electromagnetism course. (September 2019 - December 2019)

ADDITIONAL EXPERIENCE AND AWARDS

Awards

- Academic Trajectory Award by the University of Guanajuato
Awarded to the student that graduates with the highest GPA in the class
- Yearly Academic Merit Award by the University of Guanajuato (Years: 2018,2019,2021)
Awarded to the student with the highest GPA in the class in a given academic year
- Second Place at BeeHack Hackathon
By designing a system to monitor student wellbeing and predicting dropout at UG
- Honorific Mention at RIIA "Justicia para los desaparecidos" Hackathon
Providing solutions to clarify political dissapearances in Mexico in the 60s

Additional Experience

- **Synthesizing doped lithium tetraborate for dosimetry:**
Work done as a social service with Swarna Priya Thiyagarajan during her PhD degree under the supervision of Dr. Modesto Sosa Aquino (January 2019 - June 2020)

VOLUNTEER EXPERIENCE

- **Member of the UG-DCI Scientific Dissemination Group** Guanajuato, México
September 2017 - July 2018
Participated in scientific dissemination activities showing different physics and chemistry experiments at highschools in Mexico, looking to encourage the students to take interest in science
- **Volunteering in Mexico rural areas** Santa Rosa, León, México
July 2016
Provided support in different activities while living for two weeks in a rural community in Mexico.