Edwin Anzures

Mathematician

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About me

I am Edwin Anzures. I am interested in mathematics, programming, and the computational implementation of mathematical models. During my years of education I had the opportunity to fully engage in the study of highly abstract yet applicable mathematics. For instance, I worked on topics such as Partial Differential Equations, Computational Implementation of the Finite Element Method for differential equations, Probability, and Stochastic Processes.

I consider myself a well-read person, but I am always looking for something new outside my comfort zone. I hold self-imposed high-quality standards in multiple dimensions of my life.

A consequence of my passion for studying and understanding abstract mathematics is that I can easily communicate complex ideas. This, combined with my experience in college education, enables me to excel in a teaching or leading role.

Despite my academic background and focus on higher education, I am highly interested in immersing myself in non-academic projects where I can apply my mathematical and programming knowledge.

Languages

Spanish ●●●●●
English ●●●●○

Technical Skills

- Github
- Matlab
- Python
  +(machine learning libraries)
- R (programming language)
- LaTex

Work Experience

2020-2023 **Teaching Assistant** Universidad Nacional Autónoma de México (UNAM)
Grade homework assignments as well as prepare recitation lectures of several courses including: Partial Differential Equations, Advanced Topics in PDE's (Elliptic Equations), Group and Ring Theory and Galois Theory

•I cemented the theoretical understanding of abstract objects through mathematical rigor. Among the material covered we find topics such as vector spaces, groups, convergence of sequences, function optimization and integration theory.

Education

2023 **Graduate studies in Mathematical Sciences** Universidad Nacional Autónoma de México (UNAM)
Graduated with honors, 97/100 average score.
•General examinations: Real and complex analysis, differential geometry and PDE's

2020 **Undergraduate studies in Mathematics** Universidad Nacional Autónoma de México (UNAM)
Graduated with honors , 99/100 average score.

Scientific Divulgation Endeavors

2021 **I gave a lecture (in Spanish) entitled "Mathematics in Context: A Glance at the Applications of Algebra and Calculus."**
Colegio de Bachilleres del Estado de Hidalgo

Awards and Recognitions

2018 **Grant to attend the XV Escuela de Verano en Matemáticas en la Unidad Cuernavaca**
Instituto de Matemáticas de la UNAM

2019 **Grant to attend the Seminario Itinerante de teoría de representaciones CCM-FC-IM UNAM**
Institute de Matemáticas de la UNAM, Sede Oaxaca de Juárez

2020 **Graduation grant awarded by UNAM corresponding to the project UNAM-DGAPA-PAPIIT IN100718**
Instituto de Matemáticas de la UNAM

Programming Projects

The projects I have been involved in recently range from numerical analysis, where a high level of programming is required, to data analysis, where a deep understanding of data sets and machine learning tools is essential.

Matlab **FEM implementation**
The Lagrange and Crouzeix–Raviart finite element method (first order) is used to approximate the weak solution to the Poisson problem in the interval and the square with Dirichlet boundary conditions. The input is the given function f, and the output consists of the convergence tables in the Lebesgue norm L^2 and the Sobolev norm H^1 with their convergence rates.

Python **Time Series Forecasting**
The goal of this project is to use machine learning techniques (train an xgboost regression model) to predict the values of the measurements of the Southern Oscillation Index (SOI) for the following few months. These indexes are strongly associated with El niño phenomenon.