Gustavo Enrique Ramos Alcaraz

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Gustavo Ramos ORCID: 0000-0001-6387-4504

Education

Ph.D. Centro de Investigación Científica y de Educación Superior de Ensenada, Dept. of Electronics and Telecommunications, Division of Applied Physics. — Ensenada, B.C., México, April 2020 - October 2024

- Ph.D. in Electronics and Telecommunications with a focus on Telecommunications.
- **Research:** Design of a star recognition algorithm in astronomical images. (Thesis)

M.Sc. Centro de Investigación Científica y de Educación Superior de Ensenada, Dept. of Electronics and Telecommunications, Division of Applied Physics. — Ensenada, B.C., México, August 2017 - December 2019

- Master of Science in Electronics and Telecommunications with a focus on Telecommunications.
- GPA: 90.13/100.00
- **Courses:** Signals and Systems, Fundamentals of Wireless and Satellite Communications, Digital Communications, DSP (Digital Signal Processing), Stochastic Processes, Satellite Systems.
- **Research:** Development of a star recognition algorithm in astronomical images. (Thesis)

B.Eng. Universidad de Colima, Faculty of Mechanical and Electrical Engineering. — Coquimatlán, Colima, México, September 2013 - August 2017

- Bachelor of Engineering in Communications and Electronics Engineering.
- Thesis and EGEL exam unanimously approved with distinction.
- **Courses:** Analog Electronics, Digital Electronics, Digital Systems, Programming Fundamentals, Control Systems, Networks and Telephony, Calculus.
- **Thesis:** Simulation and Analysis of Time and Frequency Synchronization Strategies for OFDM Systems. (Thesis)

Work Experience

Universidad Autónoma de Baja California, UABC, Faculty of Sciences, Part-time Professor, Level C. — Ensenada, B.C., México, July 2024 - actual

- Course: Computer Organization and Architecture. Taught in the Computer Science program.

Universidad de Ensenada, UNIENS-ITECI, Part-time IT Desktop Engineer. — Ensenada, B.C., México, February 2025 - actual

Instituto Tecnológico Superior de Centla, ITSCe, Instructor, Professional Training Course for University Professors. — Centla, Tabasco, México, January 13-17, 2024

- Course: Statistical Data Analysis in Minitab.

Universidad de Ensenada, UNIENS, Part-time Professor. — Ensenada, B.C., México, July - December, 2024

- Course: Information Technology. Taught in the International Business program. From September 2 to October 3, 2024.
- Course: Management of Electronic Media. Taught in the Educational Sciences program. From November 11 to December 12, 2024.

Research Experience

Centro de Investigación Científica y de Educación Superior de Ensenada, PhD. Student.
Ensenada, Baja California
April 2020 - August 2024
4 years and 2 months

- Creation and design of algorithms for object identification in images, using Python and Matlab.
- Operation of optical systems such as telescopes, lenses, and CMOS and CCD cameras.
- Data management and image cleaning.

Instituto de Astronomía, UNAM, Telescope Observer and Operator.
Ensenada, B.C., México
August 2023 - February 2024
6 months

- Training in telescope operation and image acquisition techniques; participated in the observation campaign of asteroid 15094 Polymele.

Instituto Nacional de Astrofísica, Óptica y Electrónica, INAOE, Research Summer Program.
Tonantzintla, Puebla, México
July - September 2016
2 months

- Project: "Signal Encoding Using Chaotic Oscillators Implemented on FPGA".

Faculty of Mechanical and Electrical Engineering, Universidad de Colima, Institutional Social Service.
Coquimatlán, Colima, México
January - July 2016
6 months

- Project: "Rehabilitation of Freescale Car Prototypes".

Publications

Double light source Ronchi Tester for detection of ruling rotations. April 2024

Juan Manuel Nuñez-Alfonso, Javier Salinas-Luna, Yuliette Katinka Nuñez-Moreno, Joel Humberto Castro-Chacón, José Luis Monay-Arredondo, Benjamín Martínez-Chávez, ***Gustavo E. Ramos-Alcaraz***, Iliana Marlen Meza-Sánchez 10.1088/1402-4896/ad368d

Star-Identification System Based on Polygon Recognition. August 2023

Gustavo E. Ramos-Alcaraz, Miguel A. Alonso-Arévalo, Juan M. Nuñez-Alfonso 10.3390/aerospace10090748

Conferences, Congresses, and Workshops

Workshop, NYRIA 2024, **Design of an algorithm for star recognition in astronomical images.**
San Diego, CA, USA
October 20-25, 2024

NYRIA Workshop 2024, focused on the development of scientific instrumentation in astronomy for ground-based applications in infrared and visible wavelengths. Participation in the interdisciplinary ***Hackathon*** for the design of a 1-meter telescope with minimal CO_2 emissions and pollution. Held at the Department of Astrophysics and Astronomy, UC San Diego.

Gustavo E. Ramos-Alcaraz NYRIA Workshop 2024

Congress, SOMI XXXIII, **Experimental Verification of a Star Identification Algorithm Using Ground-Based Telescope Images.**
Torreón, Coahuila, México
October 2018

Gustavo E. Ramos-Alcaraz SOMI XXXIII Congress on Instrumentation

Congress, SOMI XXXIII, **New Ronchi Tester That Eliminates the Grid Rotation Problem.**
Torreón, Coahuila, México
October 2018

Gustavo E. Ramos-Alcaraz

SOMI XXXIII Congress on Instrumentation

Talks

Physics Seminar "Dr. Alberto Rubio", Faculty of Sciences, UABC 2024, **"Design of a star recognition algorithm for astronomical images."**
Ensenada, B.C.
November 20, 2024

UABC Physics Seminar

Graduate Seminar in Electronics and Telecommunications III, CICESE, **"Design and implementation of a star identification algorithm with applications in satellite technology."** — Ensenada, B.C. May 24, 2023

EyT CICESE Seminar

Seminars and Conferences of the Graduate Program in Electronics and Telecommunications, CICESE, **"Tesla's Roadster in space."** — Ensenada, B.C. April 18, 2018

EyT CICESE Seminar

Scholarships and Awards

CONACyT Ph.D. Scholarship (2020-2024): Doctoral scholarship awarded by the National Council of Science and Technology of Mexico, scholarship number 842163.

CONACyT Master's Scholarship (2017-2019): Master's scholarship awarded by the National Council of Science and Technology of Mexico, scholarship number 842163.

Scholarship for Outstanding Students (2016-2017): "Roberto Rocca Education Program" scholarship for undergraduate engineering studies.

Technical Skills

Programming Languages: Python, MATLAB, C, VHDL, and LaTeX.

Software: Visual Studio, Anaconda's Spyder, Microsoft Word and Excel, MATLAB, and Wolfram Mathematica.

Operating Systems: Microsoft Windows, GNU/Linux distributions such as Debian, Ubuntu, and Fedora, MacOS.

Languages

Spanish: Native proficiency

English: Intermediate level: ability to read and write technical documents, sufficient verbal communication.