

Yessica Zeltzin Orozco Armenta



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SKILLS

Mathematical models in biological systems
Complex systems
Artificial neural networks
Development on the Docker platform
Project Management

Inglés EITLS 6B 
German ÖSD A2 

Software:
Excel, Word,
Linux, Python,
Scrum

EDUCATION

National Autonomous University of Mexico

Aug 2020 - Jun 2022
CDMX, Mexico

Master of Mathematical Sciences

- Characterization of neural mathematical models, evolution of pathologies in the brain.
- Implementation of complex systems, artificial neural networks, differential equations.
- Characterization and study of dynamic systems.

National Polytechnic Institute

Aug 2009 - Dic 2013
CDMX, Mexico

Biotechnological Engineering

- Análisis y síntesis de bioprocesos, bioseparaciones, ingeniería de biorreactores y diseño de plantas.

PROFESSIONAL EXPERIENCE

Oct 2022 - Feb 2023

Manipulation of equipment for the extraction of **biometric data** (eye tracking, blood pressure, breath and EEG), **data processing** and obtaining metrics from them.
Nesting of applications in **Docker Platform**. Tecnológico de Monterrey, Mexico City.

Mar 2020 - Aug 2020

Generation and monitoring of a Industrial 3D Printer services with the **Docker Platform**, for the control and monitoring of the workflow.
Evaluation of Communication Networks in the Fiware Docker Platform.

May 2014 - Dec
2018

Consultant in Technology and Innovation at the Center for Research and Innovation in Information and Communication Technologies INFOTEC, Mexico City.

Plant design

- Evaluation and distinction of fruits and vegetables using artificial intelligence, 2018.
- Extraction of beta carotene from mango. CAASA Company, 2016.
- Production of biodiesel from the jatropha plant. CAASA Company, 2016.
- Plant development for the efficient production of pharmaceutical molecules. NEOPHARMA Company, 2015.

Project design

- Development of software for storing and viewing medical images from the cloud, massive information storage and processing. Millennium Group Company, 2015.
- Research of technologies for the synthesis of radioactive drugs in a cyclotron. MIYMSA company, 2014.
- Plant design for dry and wet production of vitamin C tablets. NEOPHARMA Company, 2014.

Technological trend analysis and Benchmarking:

- Study of precision wireless technologies for the monitoring of equipment, personnel and patients within private hospitals in CDMX. SASI Company, 2018.
- Technologies studies for transporting oil and its derivatives through gas pipelines, 2018.

- Technological monitoring of the development of medical devices in Mexico, 2017.
- State of the art in the formulation of capsules with high bioavailability and sustained release for Vinpocetine. NEOPHARMA Company, 2017.
- Study of technological trends and market study at national and international level for the nanoelectronics industry, 2014.

Proposals for technology development in INFOTEC:

- Development of a crib death detector.
- Development of an accelerometer to detect falls.

**Impartición de cursos para becarios de innovación tecnológica (2015-2018).
Impartición de cursos de programación de sensores (2015-2018).**

RESEARCH

Aug 2020 - Jun 2022 Degree work at the Institute of Research in Applied Mathematics. UNAM, Dr. Pablo Padilla Longoria

- Neural mathematical model that simulates the death of the oscillator during an epileptic seizure.

May 2017 - Mar 2020 Research stay at the Faculty of Sciences in the Department of Mathematics, Systems Physiology Laboratory. UNAM, Dr. Marco Arieli Herrera Valdez.

- Elaboration of neural mathematical models represented in dynamic systems that explain the evolution of pathologies in the brain.
- Python programming of neural mathematical models.
- Study of neurophysiology and dynamic systems.

Nov 2016 - Apr 2017 Research stay at the Computer Research Center, IPN National Polytechnic Institute, Simulation and Modeling Laboratory, Mexico City. Dr German Tellez.

- Programming of cellular automata that explain the evolution of temporal lobe epilepsy.

Oct 2014 - May 2015 Research stay at the Center for Research and Advanced Studies CINVESTAV, Pharmacology Laboratory, Mexico City. Dr Luisa Rocha Arrieta.

- Project assistant: role of the immune system in the development of epilepsy; drug selection by molecular analysis and crystallography for its implementation in epilepsy treatments; role of protein G in the development of epilepsy (experimentation based on nanotechnology techniques).
- Management of experimental animals, operation of animals and extraction of cuts in the human brain for study.

Oct 2012 - Dec 2013 Thesis student in the Interdisciplinary Professional Unit of BiotechnologyUPIBI-IPN. Dr. Fernando Germán Gutiérrez Hernández.

- Characterization of the Pericarp Anatomy of Genetically Modified Maize Genotypes, and its implications on Protein Quality.

TEACHING

Aug 2018 - Dec 2022 Professor at the Faculty of Sciences, National Autonomous University of Mexico, UNAM. Subject: Dynamic Systems in Physiology

January 2022

Synodal Thesis: "**Modeling cancer treatment with radiotherapy** using dynamic systems with parameters based on INCMNSZ patience". (Student: Jesús Isaí Ricalde Guerrero) Faculty of Sciences, National Autonomous University of Mexico, UNAM.

September 2020

Synodal of Thesis: "**Probabilistic epidemiological model with extension to metapopulation groups**". (Student: Carlos Ignacio Herrera Nolasco) Faculty of Sciences, National Autonomous University of Mexico, UNAM.

CONFERENCES AND COMMUNICATIONS

September 2013 Anatomy of the Pericarp of Quality Protein Corn Seed. INTERNATIONAL **AGRONOMY AND AGRIBUSINESS** SYMPOSIUM. From September 25 to 27 City of Tuxpan de R. Cano, Veracruz.

August 2011 Influence of Sex Hormones on the **Immune Response against Malaria**. National Congress of the XVI Summer of Scientific and Technological Research of the Pacific. From August 24 to 27, Nuevo Vallarta, Nayarit.