# Yessica Zeltzin Orozco Armenta

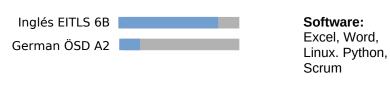
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### SKILLS

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



## **EDUCATION**

National Autonomous University of Mexico

Aug 2020 – Jun 2022 CDMX, Mexico	Master of Mathematical Sciences
	<ul> <li>Characterization of neural mathematical models, evolution of pathologies in the brain.</li> <li>Implementation of complex systems, artificial neural networks, differential equations.</li> <li>Characterization and study of dynamic systems.</li> </ul>
	National Polytechnic Institute
Aug 2009 – Dic 2013 CDMX, Mexico	Biotechnological Engineering
	<ul> <li>Análisis y síntesis de bioprocesos, bioseparaciones, ingeniería de biorreactores y diseño de plantas.</li> </ul>
PROFESSIONAL EXPERIENCE	
Oct 2022 – Feb 2023	Manipulation of equipment for the extraction of <b>biometric data</b> (eye tracking, blood pressure, breath and EEG), <b>data processing</b> and obtaining metrics from them. Nesting of applications in <b>Docker Platform</b> . Tecnológico de Monterrey, Mexico City.
Mar 2020 - Aug 2020	Generation and monitoring of a Industrial 3D Printer services with the <b>Docker Platform,</b> for the control and monitoring of the workflow. Evaluation of Communication Networks in the Fiware Docker Platform.
May 2014 – Dec 2018	<b>Consultant in Technology and Innovation</b> at the Center for Research and Innovation in Information and Communication Technologies INFOTEC, Mexico City.
	<ul> <li>Plant design</li> <li>Evaluation and distinction of fruits and vegetables using artificial intelligence, 2018.</li> <li>Extraction of beta carotene from mango. CAASA Company, 2016.</li> <li>Production of biodiesel from the jatropha plant. CAASA Company, 2016.</li> <li>Plant development for the efficient production of pharmaceutical molecules. NEOPHARMA Company, 2015.</li> </ul>
	<ul> <li>Project design</li> <li>Development of software for storing and viewing medical images from the cloud, massive information storage and processing. Millennium Group Company, 2015.</li> <li>Research of technologies for the synthesis of radioactive drugs in a cyclotron. MIYMSA company, 2014.</li> <li>Plant design for dry and wet production of vitamin C tablets. NEOPHARMA Company, 2014.</li> </ul>
	<ul> <li>Technological trend analysis and Benchmarking:</li> <li>Study of precision wireless technologies for the monitoring of equipment, personnel and patients within private hospitals in CDMX. SASI Company, 2018.</li> </ul>

• 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 Herrara 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).

 $\,{}_{\circ}$  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 Biotechnology UPIBI-IPN. Dr. Fernando Germán Gutiérrez Hernández.

 $_{\circ}$  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.