

# SEBASTIAN ROJAS-ORTEGA

+1 (302) 983-1066 | ✉ ortega@udel.edu |  LinkedIn |  GitHub |  Website |  Colombia

## EDUCATION

---

**Doctor of Philosophy - PhD, Electrical and Computer Engineering** February 2024 – Present  
*University of Delaware* Newark (DE), USA

**Bachelor of Electronics Engineering** February 2018 – December 2023  
*Universidad Francisco de Paula Santander* Cúcuta, Colombia  
*Capstone research project:* Development of a hybrid model based on artificial intelligence for energy dispatch in a microgrid.

- Use of predictive and heuristic algorithms to make predictions of energy dispatch in a microgrid, using data from California Independent System Operator (CAISO).

**GPA: 4.41 / 5.0**

## EXPERIENCE

---

**University of Delaware** February 2024 – Present  
*Graduate research assistant* Newark (DE), USA

- Analysis that involves quantifying how changes in the environment impact signals, either across the entire field or within individual modes. Achieved by adjusting the environmental inputs in the simulated data.

**University of Delaware** June 2023 – November 2023  
*Visiting research scholar* Newark (DE), USA

- Generate spectrograms of signals at different frequency bands.
- Generate sound speed profiles by extracting and interpolating salinity values from CTD sensors.
- Use of time warping techniques to extract individual modes from measured signals.

**Kiwibot** October 2022 – June 2023  
*Supervisor – Robot Operator* Cúcuta, Colombia

- Responsible for guiding the robot when it is necessary to take control and reporting any update related to the robot at hand.
- Generate tickets whenever the robot has any issue.

**Teleperformance** January 2023 – March 2023  
*Customer Service Representative* Cúcuta, Colombia

- Build strong relationships, resolve issues effectively, handling customer inquiries, and providing information about products or services
- Ability to remain calm and professional under pressure, multitask, and prioritize tasks effectively

## CONFERENCES

---

**Development of a hybrid model based on artificial intelligence for energy dispatch in a microgrid.**

November 2022

- Castro-Correa Paola A., **Rojas-Ortega Sebastian**, Castro-Correa Jhon A., and Sepúlveda-Mora Sergio B., Development of a hybrid model based on artificial intelligence for energy dispatch in a microgrid, 9th International Week of Science, Technology, and Innovation. Cúcuta, Colombia, 2022.

**Design of an application for the polarization of a BJT using Tkinter in Python.**

November 2021

- **Rojas-Ortega Sebastian** and Castro-Correa Paola A., Design of an application for the polarization of a BJT using Tkinter in Python, National and International Meetings of Research Seedbeds, ENISI. Bogotá, Colombia, 2021.

**Design of a tool for the teaching and learning of signals in the university environment using the MATLAB guide.**

August 2021

- **Rojas-Ortega Sebastian**, Castro-Correa Paola A., Hernández-Perez Camilo A., Bruges-Heredia Miguel J., and Castañeda-Pico Carlos O., Design of a tool for the teaching and learning of signals in the university environment using the MATLAB guide, 8th International Week of Science, Technology, and Innovation. ISSN: 2422-3115.

### Design of an application for the polarization of a BJT using Tkinter in Python.

May 2021

- Castro-Correa Paola A. and **Rojas-Ortega Sebastian**, Design of an application for the polarization of a BJT using Tkinter in Python, Departmental Meeting of Research Seedbeds, EDESI. Cúcuta, Colombia, 2021.

## PROJECTS

---

### 🔗 Hybrid model algorithm (Energy dispatch software) | *Python* August 2021 – February 2023

- This project was created to develop a hybrid model algorithm based on machine learning to predict production, demand and energy dispatch on a microgrid of renewable energies, using CAISO database and NREL database. The database we used is available on Mendeley Data.

### 🔗 Solar cell behaviour software | *Python* August 2022 – December 2022

- This software computes real time graphs for equations related to solar cells using Tkinter and matplotlib.

### 🔗 FiberML (Fiber Optics analyzer software) | *Matlab* August 2022 – December 2022

- Software designed as a calculator to analyze attenuation phenomena and Snell's law in optical fiber.

### 🔗 Watcher (Mobile application) | *Android* August 2022 – December 2022

- Android application that monitors temperature, humidity and CO using the DHT22 Y MQ-9 sensor. It is also capable of turning on and off a buzzer and an LED that simulate an alarm.

### 🔗 SA-PT (Signal Analysis and Processing Toolkit) | *Matlab* February 2021 – August 2022

- Software developed as a teaching tool for teachers in the field of signal and systems theory. The project was presented at national and international conferences on behalf of the SIEI seedbed (Engineering Teaching Research Seedbed).

### 🔗 BJTPy (Bipolar Junction Transistor simulator) | *Python* February 2021 – November 2021

- BJTPy was a project developed to design and simulate BJT amplifiers with one or more stages depending on the parameters required by the user. The software was created given the needs of the students of the Francisco de Paula Santander University. The project was presented at national conferences on behalf of SINEAVA (Advanced Electronics Research Seedbed).

## TECHNICAL SKILLS

---

**Programming:** Python, C (microcontrollers), Java, Git, Docker, Latex

**Development environments:** Visual Studio Code, Arduino IDE, MATLAB

**Software:** Proteus, OrCAD, LabView

**Hardware:** GPS, I2C protocol, Arduino, Raspberry

## AWARDS

---

Research project awarded with the highest score in the ENISI 2021 international event, among national and international students (100/100).

Recognition by research labor done in the International Science and Technology Fair - Cientec in Peru.

Partial scholarship (tuition waiver) during the entire undergraduate program because of the high-grade average (4.41/5.0).

Laureate thesis. April 24, 2023 (5.00/5.00).

## LANGUAGES

---

**Spanish:** Native language.

**English:** Intermediate Listener, Speaker, Reader and Writer

## PROFESSIONAL NETWORKS

---

**Institute of Electrical and Electronics Engineers, IEEE**

March 2023 – December 2023

- Student member