

# GIACOMO ECHEVERS AMBROSINO

DSP Engineer & Data Science Enthusiast

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## EDUCATION

Electronics and Telecommunications Engineering (B.Eng)

Universidad Tecnológica de Panamá

2012 – 2018

## EXPERIENCE

Smithsonian Tropical Research Institute

DSP Engineer/Researcher Intern

Mar 2017 – Mar 2018

- I was part of the "Acoustic recognition of manatee vocalizations" project, which comprised the development of a data-driven system for the detection and classification of manatee vocalizations. This project laid my foundation in Data Science and showcased my proficiency in advanced Digital Signal Processing (DSP) techniques.

Internship contributions:

- Developed a robust methodology for the automated detection of manatee vocalizations in challenging, underwater noisy environments. This approach heavily relied on the Autocorrelation Function (ACF) analysis within Wavelet Transform sub-bands.
- Employed a variety of denoising methods, including Wavelet Shrinkage, Signal Subspace denoising, and Spectral Subtraction, to enhance the quality of acoustic data, all which was crucial for improving the accuracy of subsequent Machine Learning algorithms.
- Implemented a high-density database parallel reading routine in MATLAB to efficiently manage and organize the vast amount of data generated by the acoustic analysis. This routine utilized dedicated data structures, ensuring access and retrieval of valuable information.

DSP Engineer

May 2018 – Jul 2018

During this time, while my main role was focused on DSP, I ended up applying a blend of skills more Data Science oriented due to my responsibilities extending into software development, data visualization, and data processing optimization.

- Designed an intuitive Graphic User Interface (GUI) tailored to simplify the management of the detection and denoising stages accommodating data for the classification stage. This GUI provided a user-friendly platform for visualizing the outputs of each project stage.
- Spearheaded patches and updates to the project, emphasizing on optimizing processing times. Through code enhancements, I reduced processing times from weeks to days, significantly improving project efficiency and accelerating reports, while also establishing version control procedures for the project using Git over MATLAB, ensuring the traceability and integrity of project code and data.

## SKILLS

- Softwares**
- DSP/Data Science/Development
- IDEs & Editors:
    - Atom, VS Code, Overleaf, Jupyter, GColab, Eclipse
  - Data Visualization:
    - Plotly, Matplotlib, Infogram, Charts.js, Highcharts
- Design & Electronics
- Arduino IDE, Xilinx ISE
  - Multisim, Proteus, Ultiboard, EasyEDA
  - Figma, Illustrator, Inkscape
  - Procreate, Sketchbook
  - Shapr3D, Blender, SketchUp, Fusion360
  - Snapmaker Luban, LycheeSlicer, Ultimate Cura, YAT
- Audio
- Cakewalk, Audition, Audacity
  - X32 Edit, X AIR

- Knowledge in**
- MATLAB
  - GAS/Excel VBA
  - Python
  - SQL
  - HTML
  - CSS
  - JavaScript
  - Java
  - Git, Github
  - Shell Script
  - C/C++
  - VHDL
  - LaTeX

- Statistics    seaborn    spacy    pandas
- scikit-learn    matplotlib

## LANGUAGES

- Spanish    English    Italian

## TeraSmart

### Data Analyst/Programmer

📅 Sep 2018 – Nov 2018

I had the opportunity to work on real-time data-driven initiatives that provided vital insights into the company's e-commerce departments. My role encompassed a range of responsibilities that seamlessly blended data analysis, programming, and predictive modeling.

- Monitored real-time charts and interpreted Key Performance Indicators (KPIs), including conversion rates, click-through rates, bounce rates, and more, across multiple e-commerce departments.
- Acted as a programmer responsible for analyzing, mod, and executing PHP scripts to facilitate email diffusion preparations.
- Pioneered the design and application of predictive models, including linear regression, to enhance decision-making in select departments of the company.

## Saint Mary's School

### Mathematics/Programming Teacher

📅 Jul 2019 – Jul 2021

- Implemented a forward-thinking pedagogy in 3<sup>rd</sup> to 6<sup>th</sup> grade mathematics classes, incorporating gamification and leveraging educational platforms like Google Classroom, Khan Academy, among others. This approach fostered an engaging learning environment and introduced students to tech-enhanced educational tools.
- Navigated the challenges posed by the pandemic by co-coordinating the virtual academic plans for students, emphasizing on activities that encouraged research and critical thinking.
- Pioneered the introduction of a Programming course for 10<sup>th</sup> grade students, designing a comprehensive syllabus that covered three main areas over the academic year:
  1. Introduction to Coding through Processing.js
  2. Code implementation with Spreadsheets/GAS
  3. Modern Coding in Python 3.0.

This initiative not only exposed students to the world of programming but also allowed me to develop and refine a structured curriculum.

This role at Saint Mary's School provided a unique opportunity equip myself with the skills to design and deliver educational content effectively

## NightFury|Sound & Vision

### Partner/Audio Engineer/Camera Operator

📅 September 2022 – Present

- In charge of the input signal connection management and instruments miking.
- Coordinated wireless management of Dynamics, EQ, FX and routing for live mixes through Yamaha TF, Behringer XR16 and Behringer x32 consoles.
- Proper PA sound level configurations over QSC products.
- Responsible for programming and configuring light systems through DMX protocols using QLC+.
- Pursued the implementation of a SIP server using Asterisk over in situ LAN routers to manage the private crew communication.
- Gimbal stabilized camera operator for creative shots.

## REFERENCES

### Prof. Dr. Fernando Merchán

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### Prof. Dr. Héctor Poveda

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