# JONATHAN TELLECHEA

MACHINE LEARNING ENGINEER LOS ANGELES, UNITED STATES 213.785.4393

## DETAILS

Los Angeles
United States
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## SKILLS

Research

Data Science

Machine Learning

Python

Matplotlib

NumPy

Pandas

Git/GitHub

Tensorflow

Awkward Array

Hist

Scikit-learn

Keras

TensorFlow

ROOT

Unix scripting

HTML/CSS/JavaScript

Terminal(Unix)/SSH/SCP

## LINKS

GitHub

Linkedin

## PROFILE

Skilled physicist adept in novel data analysis and advanced machine learning. Unveiling hidden trends in particle physics to advance our understanding of fundamental particles.

## PROJECTS

**Elementary App (iOS & Android), Los Angeles**
September 2023 — Present

- Successfully mastered Swift and Flutter to develop the "Elementary App," a cross-platform mobile application designed to provide users with an immersive exploration of particle physics.
- Currently, the app has achieved 80 downloads from 21 countries on the App Store, showcasing its global reach and impact on users worldwide.

## EMPLOYMENT HISTORY

**Junior Specialist at Santa Cruz Institute for Particle Physics, Santa Cruz**
July 2020 — June 2021

- Enhanced Boosted Decision Trees (BDT) analysis for ttHH production, elevating the initial significance from 0.35 sigma to a notable 0.96 sigma by utilizing Neural Networks (NN) and optimizing for the statistical significance Z-value (Z-score) using Poisson statistics.
- Implemented and optimized a Neural Networks model using Python libraries, including scikit-learn, uproot, Pandas, Keras, Tensorflow, and NumPy, to streamline data importation, preprocessing, and model creation for ttHH production analysis

**Student Researcher at University of California, Santa Cruz**
January 2019 — June 2020

- Elevated the cut-based analysis for ttHH production from an initial 0.26 sigma to a noteworthy 0.35 sigma by leveraging Boosted Decision Trees (BDT) and optimizing for statistical significance.
- Developed a BDT model utilizing Python libraries such as scikit-learn, Pandas, and NumPy to facilitate efficient data importation, preprocessing, and model creation for ttHH production analysis.

## EDUCATION

**Post-Baccalaureate in High Energy Physics, University of Virginia , Charlottesvillle**
2023

**Bachelor of Science in Physics, University of California, Santa Cruz**
2020

Thesis title: Prospects for discovery of ttHH production at the HL-LHC using Boosted Decision Trees.

**Associate of Science in Physics, Chemistry, and Mathematics, Los Angeles City College, Los Angeles**
2017

Publication: Tellechea et al., ”Aromatic Copper Hydride Cages.”, Energy Materials 1, no. 1 (2019): 16.