

Xavier Boluna

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R&D and engineering for scalable machine learning applications @ Neatleaf Robotics.
M.S Physics, previously a research scientist @ Stanford & UCSC.

EXPERIENCE

Machine Learning Engineer

Apr. 2023 – Present

Neatleaf Inc.

Scotts Valley, CA

- Managed an end-to-end data pipeline processing and inference handling ~1M datapoints daily, using scalable cloud tools. Introduced graph optimization, improving speed by 26% and cutting peak compute by 4x.
- Spearheaded the development of agricultural yield inference using instance segmentation, achieving a critical investor milestone that secured \$4M in additional funding.
- Developed a novel method using semantic segmentation and keypoint detection to accurately track individual plants from dynamic/incomplete data, prompting a major player to adopt our product nationwide and boosting ARR by ~\$100k.

Graduate Researcher

Sep. 2022 – Mar. 2023

University of California, Santa Cruz

Santa Cruz, CA

- Implemented data analysis pipelines on large and high cardinality datasets, leveraging DAGs and lazy querying.
- Published proof that it is possible to detect black hole "supernovas" using existing high-energy telescopes.

Research Assistant

Apr. 2020 – Sep. 2022

Stanford University

Stanford, CA

- Contributed to the threeML toolkit: developed a feature to pin free parameters across a large number of signal sources, which enabled multispectral research in extragalactic background light.
- Helped implement the data processing pipeline for 4D polarimetry data from IXPE satellite telescope.

Web Developer

Aug. 2015 – Sep. 2017

Global Student Square

Stanford, CA

Intern (Backend)

Jun. 2014 – Jul. 2014

AGOGO Amalgamated, Inc.

San Francisco, CA

EDUCATION

Master of Science in Physics

University of California, Santa Cruz

GPA: 3.90

2022 – 2023

Bachelor of Science in Applied Physics

University of California, Santa Cruz

Honors in the Major

2017 – 2022

AI/ML Profesional Certification

University of California, Berkeley

CORE SKILLS

Languages: Python, SQL (Postgres), Type/Javascript (some), HTML/CSS, Rust (some)

Machine Learning: OpenCV, PyTorch, ONNX, Torchscript, CoreML, Pandas, Polars, Ultraneet, Detectron, Metaflow, Determined, Tensorflow, JAX, XLA, DVC, CVAT & other annotation tools

DevOps: Git, Docker, Jira, CI/CD

Data & MLOps: AWS (Lambda, StepFunctions, S3, EC2, Fargate, Cognito), TCP/IP Networking, Data Warehousing & ETL, Continuous Stream Processing

OPEN-SOURCE CONTRIBUTIONS

ThreeML | *Bayesian astrophysics*

Astromodels | *Machine learning models for astronomy*