Xavier Boluña

xboluna@gmail.com
github.com/xboluna
xboluna.com/projects
Bay Area, CA

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

CORE SKILLS

3+ yrs experience machine learning R&D and implementation. Expert at adapting SOT techniques to novel problems.

2+ yrs cloud engineering, from microservices to architecturing pipelines.

TECHNOLOGIES

4+ yrs Python
OpenCV, PyTorch, Tensorflow Pandas/Polars, Ultranest, Detectron, ONNX, Determined,

1+ SQL/PostgreSQL
NoSQL, data versioning & ETL

1+ Orchestration
Docker & ML pipeline networking

OPEN SOURCE

ThreeML *Bayesian astrophysics*

Astromodels *machine learning models for astronomy*

EXPERIENCE

Machine Learning Engineer 2023 - present
Neatleaf Inc. Scotts Valley, CA

- Personally responsible for the data processing and inference pipeline, which processes ~1M datapoints per day. Implemented graph optimization, which saved thousands in monthly costs.
- Involved with several R&D projects from conception to implementation. Took project ownership for agricultural yield inference, and developed a model which directly contributed to the company's top-line.
- Interfaced with all aspects of the company, providing cloud solutions, and consulting product leadership in accordance with data science & research needs.

Graduate Researcher 2022 – 2023
Santa Cruz Institute for Particle Physics Santa Cruz, CA
@ University of California, Santa Cruz

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

Research Assistant 2020 – 2022
Kavli Institute for Particle Astrophysics and Cosmology Stanford, CA
@ Stanford University

- Contributed to the threeML toolkit, which enables Bayesian inference using data from multiple telescopes at the same time.
- Helped implement the data processing pipeline for 4D polarimetry data from IXPE satellite telescope.

EDUCATION

Master of Science in Physics, *Theoretical Physics & Machine Learning* GPA 3.90
University of California, Santa Cruz

Bachelor of Science in Applied Physics, *Honors in the Major*
University of California, Santa Cruz

AI/ML Professional Certification
University of California, Berkeley