Adrian Price-Whelan, Ph.D.

astrophysicist / data scientist / musician (he/him)

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Astrophysicist by profession, data scientist by passion.
I bring advanced data analysis tools and techniques to astrophysics.

EDUCATION

PH.D., ASTROPHYSICS
Columbia University
May 2016 | New York, NY

M.PHIL., M.A., ASTROPHYSICS
Columbia University

Relevant courses:
Statistical Machine Learning
Statistics, Data Mining, and Machine Learning in Astronomy

May 2013 | New York, NY

HONORS B.A., PHYSICS
New York University
May 2010 | New York, NY

TECHNICAL SKILLS

EXPERT
- Bayesian statistics & inference
- Data wrangling & visualization
- Machine learning (regression, classification, density modeling)
- Python (e.g., JAX, pandas, Jupyter, scikit-learn; the scientific stack)
- Version control (Git & GitHub, SVN)
- Collaborative software development
- Continuous integration
- Unix

COMFORTABLE
- C, C++
- SQL & databases
- MPI, multiprocessing, & parallelization
- JavaScript (jQuery, D3)
- HTML, CSS

SOFTWARE DEV

LEAD DEVELOPER
astropy, gala, thejoker, schwimmbad

CONTRIBUTOR
matplotlib, numpy

EXPERIENCE

FLATIRON INSTITUTE | Associate Research Scientist
July 2019 – present | New York, NY

Lead collaborative research projects that use scalable data analysis methods to make inferences from surveys of billions of stars.

Lead the 'Nearby Universe' research group, including strategic planning, project management, and mentoring junior scientists.

Supervise (>15) graduate student and postdoctoral research projects.

Authored 115 research papers (19 as lead author) in scientific journals.

Typical projects utilize parallel processing (MPI), fast data storage and retrieval on HPC systems, and efficient statistical algorithms for regression, posterior inference (e.g., MCMC, SVI), and density modeling.

SIMONS FOUNDATION | Asst. Director of Scientific Software
September 2022 – present | New York, NY

Responsibilities include developing, assessing, and implementing programs to support open source software across scientific fields.

Developed a new yearly grant program to support new faculty positions for leaders in scientific software development across math and the physical sciences (first cohort selected spring 2024).

Led a joint award program (with National Science Foundation) to establish two new national astronomy AI institutes (two $20 million awards).

PRINCETON UNIVERSITY | Postdoctoral Research Fellow
July 2016 – July 2019 | Princeton, NJ

Led my research program, including design and implementation of a custom Monte Carlo sampler for posterior inference of binary star properties (deployed on 700,000 stars with 3–50 observations per star).

Advised students, including primary mentoring of a graduate student project to define and implement a new Bayesian model selection method that led to the discovery of thousands of new binary star systems and several new star clusters using a parallelized data analysis pipeline (deployed over hundreds of millions of systems).

Lecturer in charge of syllabus for applied data science and statistics course, and co-organizer of a weekly data science seminar series.

TENFORE HOLDINGS | Consultant (Data Science)
November 2014 – December 2015 | New York, NY

INSTRUCTOR | Data Science and Computing
July 2011 – present | New York, NY

Lecturer for numerous software, computing, and data science workshops, including the LSSTC Data Science Fellowship program.