

James Bourbeau
<https://jrbourbeau.github.io>

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INTERESTS

Scientific computing, machine learning, deep learning, data manipulation and visualization, software development

EDUCATION

University of Wisconsin–Madison	Madison, WI
Ph.D. in Physics (graduating May 2019)	2013 – present
M.S. in Physics	2017
University of Texas at Arlington	Arlington, TX
B.S. in Physics	2009 – 2013

PROGRAMMING SKILLS

- **Python:** NumPy, SciPy, Pandas, scikit-learn, XGBoost, Keras, TensorFlow, Dask, matplotlib, Sphinx
- **Other tools:** git, Bash, Docker, make, HDF5, L^AT_EX

EXPERIENCE

Wisconsin IceCube Particle Astrophysics Center	Madison, WI
Graduate Research Assistant	Jan 2016 – Present
<ul style="list-style-type: none">• Built a machine learning analysis framework to automate both classification and regression tasks on a 2 TB dataset of comic-ray samples• Developed an open source Python package that implements a Bayesian statistical deconvolution algorithm• Implemented a data processing pipeline to ensure quality data selections• Engineered a deep learning model to classify images collected from a global network of smart phone cameras with an accuracy of 95%• Developed strong written and verbal communication skills working as a member of a large scientific collaboration with hundreds of members	
University of Texas at Arlington	Arlington, TX
Undergraduate Research Assistant	May 2010 – May 2013
<ul style="list-style-type: none">• Performed statistical analysis and visualization of data collected in our lab• Maintained and further developed research group's C++ codebase	

PROJECTS

I am an active developer, maintainer, or contributor to several open source projects in the Python data science community. Projects I maintain or have made significant contributions to include:

- PyUnfold – Python package for performing iterative Bayesian unfolding
- PyCondor – Python package for building and submitting workflows to an HTCondor cluster
- Dask – Python library for parallel computing at scale

In addition, I've made contributions to other projects such as scikit-learn, MLxtend, and more. Full details are available at github.com/jrbourbeau.

PUBLICATIONS AND PRESENTATIONS

Available at <https://jrbourbeau.github.io>