Nathan J. Goldbaum

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Experience

Recurse Center

Participant   May 2019 – Present

- Transitioned from academia to industry by attending a self-directed educational retreat.

- Implemented a `Rust` client for the `Mercurial` version control system.

- Learned the `Rust` programming language and improved technical communication skills by blogging about incrementally building a `Rust` command-line application.

National Center for Supercomputing Applications

Research Scientist   May 2017 – April 2017
Postdoctoral Researcher   August 2015 – April 2017

- Primary maintainer for The `yt` Project, an open source toolkit for analysis and visualization of 3D simulation data in Python.

- More than 650 merged pull requests for `yt` alone. Many others merge in popular open source projects such as `Matplotlib`, `Mercurial`, `xonsh`, `conda-forge`, `Homebrew`, `h5py`, `IPython`, `ipywidgets`, and `nbconvert`.

- Led the effort to triage code review tasks and issue reports. Planned and led user workshops and developer sprints. Member of the project steering committee.

Projects

unyt   https://github.com/yt-project/unyt/

- A Python library for working with data that has physical units.

- 100% test coverage along with extensive documentation for use as a command-line helper for quick calculations and as a component of a larger Python project.

Improved support for particle data in yt   https://ytep.readthedocs.io/en/master/YTEPs/YTEP-0032.html

- Improved performance and memory usage for common analysis tasks by 10x to 100x by leveraging a novel system for spatially indexing particle data via EWAH-compressed Morton codes.

- Enabled production data pipelines leveraging gigabyte and terabyte scale simulation outputs.

- Presented work to community at a SciPy conference talk.

PlotWindow Plotting Interface   https://yt-project.org/doc/visualizing/plots.html

- Created an interface for visualizing slices and projections in `yt` by wrapping `Matplotlib`.

- Enables quick data visualization through an API that focuses on what the simulation data physically represent rather than how they are laid out on disk.

- Used in dozens of published journal articles written by `yt` users.

Skills

`Python`, `Cython`, `C/C++`, `Rust`, `NumPy`, `Matplotlib`, `Jupyter`, `Git`, `GitHub`, `Mercurial`, LaTeX

Education

University of California Santa Cruz

Ph.D. Astronomy & Astrophysics   August 2011 – July 2015

University of Colorado Boulder

B.A. Physics, *Summa Cum Laude*   August 2005 – 2009