

# Matthew Barber

📍 Southend-on-Sea, Essex, UK    ✉️ [quitesimplymatt@gmail.com](mailto:quitesimplymatt@gmail.com)

## EXPERIENCE

### Software Engineer @ Quansight

July 2021–

- Helped design API standards as a member of the Python Data APIs consortium, which are now adopted by popular array and dataframe libraries such as NumPy and pandas.
- Built a REST API backend for a client's image detection platform, using FastAPI and various other libraries that modelled, queried and migrated a postgres database.
- Transitioned a client's ETL pipeline to the Dagster data orchestration platform for Python, in which I conducted a refactor of their codebase and made deep structural improvements.
- Responsible for instilling a testing culture in a client's data pipelines team. I encouraged personnel to write tests and CI infrastructure by writing guides, running tutorials and pair programming.
- Contributed NumPy compatibility layers to PyTorch as part of a contract with Meta. Such layers enable scientific code originally built for NumPy to now take advantage of PyTorch tensors and ops.

## PROJECTS

### Hypothesis

Popular property-based testing library for Python that I help maintain.

- Contributed array API tools that are now used in the test suites of libraries such as NumPy and PyTorch.
- Maintained modules used to test numerical/scientific code generally.

### dataframe-interchange-tests & array-api-tests

Compliance test suites for the dataframe interchange protocol and array API standards respectively.

- Employed property-based testing to generate many varied and interesting test cases to say with a high degree of confidence whether an implemented API is compliant or not.
- Architected library-agnostic tests so that the test suites can run against any implementation of a standard.
- Projects like NumPy and PyArrow have found dozens of bugs in their main libraries just by testing their API compatibility layers.

## PUBLICATIONS

Consortium for Data API Standards, 'Python Array API Standard: Toward Array Interoperability in the Scientific Python Ecosystem', in *Proceedings of the 22nd Python in Science Conference, 2023*, pp. 8–17.

## EDUCATION

### Aston University

Sep. 2016–July 2020

1st (Honours) BSc Computer Science

## FIND ME ONLINE

 [github.com/honno](https://github.com/honno)

 [blog.honno.dev](https://blog.honno.dev)

 [linkedin.com/in/honno](https://linkedin.com/in/honno)

## OSS CONTRIBUTIONS

NumPy

PyTorch

CuPy

JAX

pandas

PyArrow

polars

Vaex

cuDF

modin

OpenBLAS

Hypothesis

pandera

Rich

## LANGUAGES

Python

Java

C#

SQL

JavaScript

Bash

Lisp

## TOOLS

pytest

git

GitHub Actions

Jupyter Notebook

Linux