

# Matthew Barber

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## PROFILE

I'm a BSc Computer Science graduate experienced in using Python for data mining applications. I can efficiently explore, preprocess and model for data to identify the underlying patterns which lead to useful insights. I can develop quick scripts and notebooks to fully-fledged CLIs and websites. I can work efficiently alone, being a disciplined and resourceful individual, always eager to improve my craft. With my employment and volunteering experiences necessitating cohesive teamwork, I enjoy working with and learning from my peers, and can communicate my own ideas succinctly.

## EXPERIENCE

### Quansight OSS Intern

July–Sep. 2021

Creating tools for developers and users of Python array libraries such as NumPy to test their adoption of the upcoming Array API standard. Involves using property-based techniques to find non-obvious bugs, where my work is now being merged into the popular Hypothesis library for first-party support and will be used by the official Array API compliance suite.

## PROJECTS

### coinflip

Python library for assuring cryptographic randomness in RNGs. The implemented statistical tests use pandas under the hood. A testing suite featuring pytest and Hypothesis ensures reliable results.

### Linear B-cell Epitope Classification

Essay on exploring, preprocessing and modelling for a dirty proteins dataset. Subtle duplication patterns were identified, resolved via a bespoke Python script. Weka was used to create various classifiers to find the most appropriate model for both equal and uneven cost scenarios.

### yygarchive.org

Flask site to search for games of a shutdown games portal. Games were procured from an existing WARC collection, replayed with pywb to subsequently be scraped using requests and BeautifulSoup.

### Recursive GZIP Bomb Tutorial

Comprehensive primer on the file format and compression algorithm theory involved in creating compressed file quines (i.e. extracts to an exact copy of itself, ad infinitum). Self-referential checksum was brute-forced by a multiprocessing Python script.







## EDUCATION

### Aston University

Sep. 2016–July 2020

1st (Honours) BSc Computer Science

## FIND ME ONLINE

 [github.com/honno](https://github.com/honno)  
 [pypi.org/user/honno](https://pypi.org/user/honno)  
 [kaggle.com/justhonno](https://kaggle.com/justhonno)  
 [matthewbarber.io](mailto:matthewbarber.io)  
 [blog.matthewbarber.io](https://blog.matthewbarber.io)  
 [linkedin.com/in/honno](https://linkedin.com/in/honno)

## LANGUAGES

Python  
C  
SQL  
JavaScript  
Bash  
Lisp

## PACKAGES

pandas  
NumPy  
SciPy  
pytest  
Hypothesis  
Sphinx  
Matplotlib  
Altair  
Rich  
Click  
Requests  
Flask  
Django  
Beautiful Soup  
pywb

## TOOLS

Git  
Jupyter  
pre-commit  
GitHub Actions  
Docker