Saul Shanabrook

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EDUCATION

Recurse Center, Participant — January 2023 - May 2023

- Created a Python library to expose the egglog rust project as built-in Python constructs such as classes, functions, methods, and type annotations.
- Built visualizations for the egglog project using Graphviz to make the project more accessible and help with debugging rules.
- Pair programmed with other students, helping them navigate their projects and sharing my process.

University of Massachusetts, Bachelor of Science, Amherst, MA — September 2015 - December 2017

- Major: Computer Science. GPA: 3.7/4.0. Commonwealth Honors College
- Co-developed project processing congressional bills for text reuse and ideology, using maximum likelihood estimation.

PUBLICATIONS

- Shanabrook S. (2023) Egg-smol Python: A Pythonic Library for E-graphs. E-Graph Research, Applications, Practices, and Human-factors Symposium. ACM SIGPLAN Conference on Programming Language Design and Implementation.
- Meurer A., Reines A., Gommers R., Fang Y., Barber M., Hoyer S., Mller A., Zha S., Shanabrook S., Gacha S., Lezcano-Casado M., Fan T., Reddy T., Passos A., Kwon H., Oliphant T. (2023) Python Array API Standard: Toward Array Interoperability in the Scientific Python Ecosystem. Python in Science Conference (SciPy).
- Helmuth T., Spector L., McPhee N.F., Shanabrook S. (2018) Linear Genomes for Structured Programs. In: Riolo R., Worzel B., Goldman B., Tozier B. (eds) Genetic Programming Theory and Practice XIV. Genetic and Evolutionary Computation. Springer, Cham
- Spector L., Cava W.L., Shanabrook S., Helmuth T., Pantridge E. (2018) Relaxations of Lexicase Parent Selection. In: Banzhaf W., Olson R., Tozier W., Riolo R. (eds) Genetic Programming Theory and Practice XV. Genetic and Evolutionary Computation. Springer, Cham

EXPERIENCE

Software Developer, **Linea**, San Francisco — March 2021 - April 2022

- As one of the first employees, helped create processes for our team work together remotely.
- Implemented human-centered design process to go from clients' needs to development work.
- Designed multiple open-source systems in Python to help data science users.

Core Contributor, **Project Jupyter** — March 2018 - October 2020

- Recognized as a Distinguished Contributor to the Jupyter project for consistent participation in the open-source community.
- Applied for and received Chan Zuckerberg Initiative grant to work on real-time collaboration in JupyterLab.
- Helped coordinate releases of the package, triaged issues, and responded to the community on Github.
- Supported new members of the community in becoming involved.

Software Developer, **Quansight** — March 2018 - October 2020

- Built tools for the Array Data APIs Consortium to collect usage data of array methods based on downstream usage in other open-source libraries.
- Participated in diverse distributed open-source Jupyter community as a core contributor to JupyterLab.
- Built dataflow visualizations for the Vega library to aid in debugging and performance optimization.
- Mentored interns and new hires on JupyterLab extension development and data science in Python.
- Built open source interactive large data visualization tool integration Vega and Ibis.

- Worked with a variety of clients to build custom data science tooling to meet their needs.

Researcher, **Computational Intelligence Lab**, Hampshire College October 2015 - December 2017
- Profiling and creating a reproducible benchmark pipeline to help double the throughput of the experimental system for researchers.
- Redesigned our research flow, to enhance group collaboration and reproducibility, using Jupyter, Apache Parquet, and Apache Spark.
- Simplified management of our Clojure framework for genetic programming by adding support for automatic releases, testing, and documentation generation using Travis CI.

Researcher, **Statistical Social Language Analysis Lab**, Univ. of Massachusetts Sept. - December 2017
- Collaborated with the Fatal Encounters non-profit to create an interactive visualization of police fatalities using a React frontend, a Flask backend, and a Pandas/Numpy data pipeline.
- Improved backend responsiveness by profiling to improve pipeline and processing speeds.

Software Contractor, **Burke Software**, New York City December 2014 - August 2017
- Refactored our cryptography API in Typescript to provide better type safety and usability.
- Improved reliability, concurrency, and performance of CI builds for theLab by provisioning isolated Docker Compose builds with Gitlab CI, using Ansible
- Created Ansible and Terraform scripts to provision Mesos + Docker cluster in AWS with multi-AZ to support client's microservice architecture.
- Supervised and on-boarded new team member through video chat, working through problems together.
- Implemented a polyfill for the Web Cryptography API for Nativescript and React Native with E2E tests.

Researcher, **Intelligent Coordination and Logistics Lab**, Carnegie Mellon University May - August 2016
- Developed and implemented technique to find shortest path on a sphere around polygon obstacles.
- Presented in a paper, poster session, and a presentation for the lab.

Creator, **lucibus**: modern stage lighting control June - August 2015
- Collaborated with other lighting designers to produce design document.
- Designed and implemented near-realtime multi-user experience using Go, React, and Cerebral.
- Constructed multi-layered continuous integration system to build and test, using Selenium, Mocha, Saucelabs, Docker, WebdriverIO, and Travis.

Website Developer, **CANADA**, New York City August 2011 - August 2013
- Rewrote www.canadanewyork.com in Django, migrating data from Wordpress.
- Created full production pipeline; testing on Travis, and rollbacks with Heroku pipelines
- Spin off multiple open source libraries for Django, including django-dumper and django-simpleimages