Glass Elsarboukh

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Summary

Physicist and Software Engineer with 5 years experience enabling science through software, Seeking opportunities that will allow me to develop tools for effective research and to bridge interdisciplinary gaps.

Education and Certifications

- **Bachelor of Science in Physics,**
  University of Colorado Denver, 2020
- **IBM Data Science (Credly Badges)**
  edX Professional Certification, 2021
- **Writing in the Sciences**
  Stanford University, Coursera Specialization course, 2021

Languages	Dev Ops	Lifecycle
• Python (FastAPI, Numpy/Pandas, et al.) • Bash • HTML/CSS/JS • SQL	• Docker • Jenkins CI • DigitalOcean/AWS • Kubernetes	• Git, GitHub/Lab • ZenHub

Experience

- **TISLab** - Scientific Software Engineer (Jan 2022 - Present)
  The Translational and Integrative Sciences Laboratory (TISLab) is a nation-wide group of cross-disciplinary specialists working to enable research by developing tools for collecting and unifying data for a variety of projects (genetics, COVID, bioinformatics, etc.).
  - Maintained Koza - a data transformation Python library
    - Allows users to intake csv/json data, perform user-defined manipulations, and write to a new csv/json file
    - Implemented several features such as file validation and logging
    - Removed unnecessary dependencies,
  - Maintained Monarch Ingest: a Monarch Initiative specific set of data ingests
  - Helped rewrite API for the Monarch Initiative using FastAPI and SOLR queries

Experience (cont'd)

- **Super Cryogenic Dark Matter Search** - Research Assistant (Jan 2018 - Jan 2022)
  The Super Cryogenic Dark Matter Search (SuperCDMS) is one of several collaborations performing experiments to directly detect weakly interacting elementary particles and thus understand the nature of dark matter.
  - Built Docker image of analysis environment for JupyterHub deployment
    - Allows users to quickly and securely access data analysis environment
    - Eliminated the need to install cumbersome dependencies
  - Debugged build process for legacy data processing software
    - Identified core dependencies
    - Converted outdated code from Python2 to Python3
    - Fixed broken/missing C++ import statements
  - Migrated software repositories to GitLab from self-hosted GitBlit server

- **Diana HEP** - Diana Fellow (Dec 2019 - June 2020)
  The primary goal of DIANA/HEP is to develop state-of-the-art software tools for experiments which acquire, reduce, and analyze petabytes of data.
  - Initial implementation of Awkward arrays as target language for Kaitai Struct
  - Awkward Arrays allow for storing data into nested, jagger arrays of arbitrary types
    - Python / C++ compatible
    - Resource and time efficient, using as little as 10% of the required time and memory as standard Python dicts
  - Kaitai Struct generates code for interfacing with custom binary data, based on a YAML-like description of that data format
    - Many popular target languages like C++, Java, Golang, etc.
    - Can be difficult to use with complicated data formats
  - Combining Awkward and Kaitai will allow scientists with custom data formats to simply describe their data, and end up with highly efficient and accessible Awkward arrays
  - Proof of Concept presented to Diana HEP group and published to OSF