

# Glass Elsarbouxh

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**GitHub/GitLab:** glass-ships

Colorado Springs, CO

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## Summary

Scientific software engineer seeking opportunities to hone skills and grow as a developer.

Passionately curious, creative problem solver.

## Education and Certifications

- **Bachelor of Science in Physics, with a focus in computational methods**  
*University of Colorado Denver, 2020*
- **Writing in the Sciences**  
*Stanford University, Coursera Specialization course, 2021*

## Skills and Languages

- Python
- Git
- Docker
- Linux, Windows
- Bash scripting
- Agile/Scrum workflow

## Experience

- **Super Cryogenic Dark Matter Search** - Research Assistant (Jan 2018 - Present)  
*The 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
  - Build debugging 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    - Converted outdated code from Python2 to Python3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, jagged 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, Go, 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

- **Glass Ships** - Live and recording musician (2012 - Present)

- Audio recording and engineering
- Production, mixing and mastering