Reece Boston, Ph.D. Physics

numerical astrophysics researcher

expert scientific software engineer

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- C++ (>10yr)
- python (>4yr)
- R (>10yr)

Work Experience

Scientific Software Engineer at ORNL — Mar 2023 - present

Quant Researcher at Anchorage Digital — Oct 2022 - Mar 2023

R&D Data Scientist at Community — Sep 2021 - Jun 2022

Research Assistant at University of North Carolina — Aug 2016 - May 2022

Projects

Thrain: High-precision asteroseismology code for simple white dwarf stars. I was the sole dev and designer for this project, which came out of my dissertation research. The software enabled validating a long-standing hypothesis about white dwarf star formation from ensemble fitting.

tech low-level language features of C++, written in a text editor, compiled in gcc

SNAPRed: Neutron scattering data reduction code for highly-reconfigurable instruments. I was a lead dev on this project, and helped in the design and planning. To highlight a few contributions, I wrote the non-SQL database manager for handling filesystem data, and streamlined code production by building dev tools within the program.

tech python [pydantic, pytest, PyQt5]

Mantid: Neutron scattering data analysis software from the mantid project. I am a contributor to the project and a gatekeeper for code changes. My largest contribution was refactoring the legacy file management system through a methodical process known as the strangler.

tech C++17/20 [cmake, cxxtest, hdf5/H5Cpp, STL]

Research Publications

- Alejandro H. Córsico, S. Reece Boston et al, "General relativistic pulsations of ultra-massive ZZ Ceti stars," MNRAS, (2023).
- Boston, S. Reece, C. R. Evans and J. C. Clemens, "Relativistic Corrections in White Dwarf Asteroseismology." Astrophysical Journal, (2023)
- Boston, S. Reece, *Newtonian and Relativistic White Dwarf Asteroseismology*, Ph.D. dissertation, UNC, (2022).
- de Souza, Rafael, S. Reece Boston, Alain Coc, and Christian Iliadis, "Thermonuclear fusion rates for tritium+deuterium using Bayesian methods." Physical Review C, (2018).
- Boston, S. Reece, "Time travel in transformation optics." Physical Review D, (2015).

Ph.D., Physics University of North Carolina — 2022