Reece Boston, Ph.D. Physics

numerical astrophysics researcher

expert scientific software engineer

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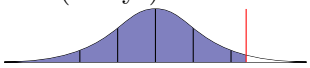
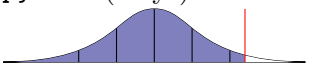
- C++ (>10yr) 
- python (>4yr) 

tools: git, gnu/linux, bash, github actions CI/CD, LaTeX, conda/mamba, vscode

Work Experience

Scientific Software Engineer at ORNL — **Mar 2023 - present**

Quant Researcher at Anchorage Digital (transitioned following FTX collapse) — **Oct 2022 - Mar 2023**

R&D Data Scientist at Community (role ended in post-covid tech downturn) — **Sep 2021 - Jun 2022**

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

Selected Projects

Thrain: High-precision asteroseismology code for simple white dwarf stars — **UNC**

role sole dev and designer; developed during dissertation research

impact enabled ensemble fitting to validate long-standard hypothesis in stellar evolution

tech C++ [low-level, manual memory management], written in text editor, compiled in gcc

SNAPRed: Data reduction code for highly-reconfigurable neutron scattering instruments — **ORNL**

role senior developer; co-designed system architecture

impact built NoSQL-based tool to map instrument states to calibrations

tech python [pydantic, pytest, PyQt5]

Mantid: Multi-institutional neutron data analysis platform and python API — **ORNL**

role contributor and gatekeeper

impact refactored legacy file management system using the strangler pattern

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**