Devin Short

Seattle, WA | shortda@uw.edu | shortorian.github.io

Research engineer with 8 years' hands-on experience designing, building, and operating experimental hardware for nuclear physics labs. 4 years' experience developing innovative database software for research in history and philosophy of science. Independently set up and operated laboratory tests of new hardware, including hazardous systems like prototypes of high voltage electronics. Designed and implemented simulations of hardware systems to analyze performance and failure modes. Remotely accessed high performance computing clusters to run complex numerical models and report results in a Linux environment. Independently proposed and implemented a unique database system in Python, including an automated test suite for code development. Experience managing projects developing both laboratory instruments and software tools.

HIGHLIGHTS

- Modeled, prototyped, assembled, and tested all subsystems for an atomic mass spectrometer which has produced samples and data for 16 journal articles collectively cited more than 200 times.
- Wrote and validated a Monte Carlo model of particle motion to study mass spectrometer performance.
- Independently proposed a new approach to research in history and philosophy of science and developed a data model and Python code to implement it with a database.

CORE COMPETENCIES

- Experimental physics, with a master's degree and extensive lab experience as an undergraduate.
- Electrical engineering, including high voltage and radio frequency systems as well as some PCB design.
- Mechanical engineering, especially ultra-high vacuum systems and rack-mount devices.
- Physics-based modeling, especially with Monte Carlo codes.
- Data analysis, visualization, and database development, primarily using Python.
- Project management.
- Teaching and mentoring, technical writing, and public speaking.

EXPERIENCE

Research Assistant | TRIUMF, Vancouver BC **2013 – 2014**

- Performed nuclear physics experiments at Canada's national particle accelerator center.
- Coordinated work between research groups in Germany and Canada.
- Co-wrote a proposal to take beam time for a new experiment.

Research Assistant | UW Center for Experimental Nuclear Physics and Astrophysics, Seattle WA **2008 – 2012**

- Independently operated a small accelerator facility.
- Trained new students on data acquisition and signal processing with Nuclear Instrument Module electronics.

Research Assistant | Lawrence Berkeley National Laboratory, Berkeley CA **Spring 2010**

- Designed nonlinear infrared laser amplifier for an ultrafast laser system.

EDUCATION

PhD, History of Science | University of Washington, Seattle WA **2018 – Present**

Graduate Certificate in Climate Science | University of Washington, Seattle WA **2018 – Present**

Currently writing a dissertation on the history of computer modeling in climate science.

- Developed a novel graph database system to handle multiple representations of large graphs.
- Wrote Python code to parse customizable text input formats into normalized database tables.
- Maintained and updated automated unit tests during code development.
- Sole author of a successful grant application for $20,000 in research funds.

MSc, Nuclear Chemistry | Simon Fraser University, Burnaby BC **2014 – 2018**

- Wrote a master's thesis praised as a clear introduction to a complicated nuclear physics instrument.
- Course work focused on nuclear physics and group theory.

BSc, Physics | University of Washington, Seattle WA **2007-2012**

- Won a national competition for a research internship funded by the Department of Energy.

SUMMARY OF PUBLICATIONS

Complete list available at shortorian.github.io/publications

- Co-authored 12 journal articles reporting on instrumentation and experiments in nuclear science.
- Sole author of one magazine article and two book reviews in history and philosophy of science.
- Delivered 9 presentations at regional, national, and international conferences.

ADDITIONAL SKILLS

- Advanced Python. Experience with R, Lua, Mathematica. Limited JavaScript, FORTRAN, SQL, C++.
- Advanced modeling with SciPy, COMSOL, SIMION. Limited MATLAB, LabVIEW.
- Experience with Inventor, Illustrator, LaTeX, Word, Excel, PowerPoint. Limited AutoCAD.
- Work safely with high voltage, radiation fields, glove boxes, clean rooms, and class 4 lasers.
- Built knock down workbench for woodworking, building bike wheels, and other projects in small space.