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Casey A. Anderson

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Executive Summary

Nuclear engineer, **physicist**, and **programmer** with over six years of experience involving scientific computing, critical thinking, and analytical problem solving. Leader in student organizations, strong collaborator in diverse work environments, demonstrated history delivering products, and effective at communicating and publishing results.

"Put in a quote right here from someone, and its okay if it goes over a few lines thats okay"
Quote Person

Professional Experience

Los Alamos National Laboratory — Los Alamos, New Mexico

Graduate Research Assistant	*NEN-5, Systems Design & Analysis*[1]	May 2016 - *Present*
Graduate Research Assistant	*ISR-1, Space Science & Applications*[2]	Dec. 2016 - *Present*
Post Master's Research Assistant	*W-13, Advanced Engineering Analysis*[3]	May 2011 - Jul. 2012
Summer Intern	*XCP-3, Monte Carlo Codes*[4]	2010

- Implemented new features in MCNP6 through writing code, developing benchmarks, publishing reports, and presenting the new features at various conferences [Pubs: **??**,**??**,**??**,**??**][1]
- Gained significant knowledge and experience in the design, modeling, simulation, and analysis of a variety of radiation detectors for the **Nuclear Detection Figure of Merit (NDFOM)** project[2]
- Transitioned NDFOM from version 2.0 to 3.0 by modularizing and refactoring the backend Python code and through developing a cleaner, more intuiative HTML user interface for the customer[2]
- Managed the deployed server of NDFOM, including SQL database[2]
- Assisted in the development, testing, validation, and verification of the combined radiation transport and finite-element analysis multi-physics capability for the **Engineering Campaign-7 Nuclear Survivability** project[3]
- Developed unstructured mesh human phantoms for health physics applications with MCNP6 [Pub: **??**][3]
- Acquired DOE Q-level security clearance and Sigmas 1-10,11,12,13,15 and performed analysis on the W-88 system[3]
- Utilized the high performance computing (HPC) systems and utilities for advanced physics simulations and analysis[1,2,3,4]
- Created a software visualization package for finite element geometries in MCNP simulations[4]

Medical College of Wisconsin — Milwaukee, Wisconsin

Graduate Research Assistant	*Department of Biophysics*	2012-2016[1]
Biophysics Representative, IT Liason	*Graduate Student Council*	2014-2016[2]

- Funded my graduate studies through conducting the background research, providing the preliminary results, and co-authoring a successful **R21** National Institute of Health (NIH) grant[1]
- Patented a segmented reconstruction technique for artifact reduction in Magnetic Resonance Imaging [Pat: **??**][1]
- Collaborated with a diverse group of professionals, including medical doctors and imaging technologists, to perform clinical research, meet deliverables, and submit the findings to various international conferences [Pubs: **??**,**??**,**??**][1]
- Interacted with clinical patients and subjects to collect patient data for clinical studies
- Facilitated communication between students and staff in the graduate school with the university's Information Technology group[2]

University of Wisconsin - Madison — Madison, Wisconsin

Student Research Assistant	*Department of Medical Physics*	2008-2011
Chapter President	*American Nuclear Society (ANS)*	2010-2011

- Researched methods for non-invasive quality assurance assessment of radioactive brachytherapy seeds
- Managed the American Nuclear Society organizational duties, including activities such as recruiting guest speakers to present at meetings, organizing conference travel, and arranging public outreach events
- Mentored an taught a variety of students through volunteering at various events, such as Science Olympiad, middle and high school science fairs, and teaching local Boy Scout chapters to achieve their merit badges

Areas of Expertise

Physics/Engineering
- ● Nuclear Engineering
- ● Fourier Analysis
- ● Monte Carlo Methods
- ● Magnetic Resonance Imaging
- ◓ High Performance Computing
- ◓ Signal Processing
- ◓ Regularization Methods
- ◓ Radiation Detectors
- ◓ Multi-physics coupling
- ◓ Radioactive Material Handling
- ○ Computer Aided Engineering
- ○ Finite Element Analysis

Software
- ● MCNP
- ● Abaqus/CAE
- ● Linux
- ● Matplotlib
- ● Microsoft Office
- ● Matlab
- ● MacOS
- ◓ PostgreSQL
- ◓ Windows
- ○ VisIt
- ○ RELAP

Programming
- ● Python
- ● Bash
- ● LaTeX
- ● Unit Testing
- ● Matlab
- ● Mercurial
- ◓ Git
- ◓ C/C++
- ◓ Fortran
- ◓ Debugging
- ○ Java

Other Skills
- ● Technical Writing
- ● Presentations
- ● Leadership
- ● Version Control
- ● File I/O
- ● Scripting
- ◓ Data Visualization
- ◓ Validation & Verification
- ◓ SQL Databases
- ◓ Clinical Work
- ○ Server Management
- ○ Animal Handling

Key (*Skill Level*)
● **Expert** ◓ **Intermediate** ○ **Beginner**

Funding Sources

- General Electric / National Football League (GE/NFL) concussion study grant
- Department of Homeland Security (DHS) Deparment of Nuclear Detection Office (DND)
- DHS Nuclear Detection Figure-of-Merit (NDFOM)
- Engineering Campaign 7, Nuclear Survivability

Awards & Honors

SPOT Award	Los Alamos National Laboratory	August, 2017
Magna Cum Laude Abstract	ISMRM	2016

Afilliations

- American Nuclear Society (ANS)
- American Association of Physicists in Medicine (AAPM)
- International Society of Magnetic Resonance in Medicine (ISMRM)

Education

Primary Education

M. Sc, Biophysics	*Medical College of Wisconsin*	April, 2016
M. Sc, Nuclear Engineering & Engineering Physics	*University of Wisconsin - Madison*	May, 2011
B. Sc, Nuclear Engineering	*University of Wisconsin - Madison*	May, 2011

Thesis: "Quantitative Susceptibility Mapping: Exploratory Development and Initiation of Processing Pipelines"

Additional Classes & Trainings

MCNP6 Intermediate Workshop	*Los Alamos New Mexico*	May, 2016
CPR Certification Training	*Milwaukee, Wisconsin*	May, 2015
General Electric MR Programming Workshop	*Madison, Wisconsin*	Oct, 2014
Dale Carnegie Training	*Los Alamos, New Mexico*	August, 2011
Introduction to Abaqus	*Minneapolis, Minnesota*	June, 2011
Introduction to Python Programming	*Los Alamos, New Mexico*	July, 2010
MCNP5 Beginner Workshop	*Los Alamos, New Mexico*	May, 2010