

**Personal Information**  
Address: 1599A 39th Street  
Los Alamos, NM 87544  
Phone: +1 (920) 858-8783  
Email: [casey.alan.anderson@gmail.com](mailto:casey.alan.anderson@gmail.com)

# CASEY A. ANDERSON

<https://www.linkedin.com/in/caseyalananderson>

**Work Information**  
Address: P.O. Box 1663  
Los Alamos, NM 87545  
Phone: +1 (505) 667-5968  
Email: [casey\\_a@lanl.gov](mailto:casey_a@lanl.gov)

## 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/Post Master's

*NEN-5, Systems Design & Analysis<sup>1</sup>*

2016-Present

#### Graduate Research Assistant/Post Master's

*ISR-1, Space Science & Applications<sup>2</sup>*

2011-2012

#### Summer Intern

*W-13, Advanced Engineering Analysis<sup>3</sup>*

2010

*XCP-3, Monte Carlo Codes<sup>4</sup>*

- Implemented new features in MCNP6 through writing the code, developing benchmarks, publishing reports, and presenting the new features at various conferences [Pubs: ??,??,??,??]<sup>1</sup>
- Acquired significant knowledge and experience in the design, modeling, simulation, and analysis of a variety of radiation detectors for the NDFOM project<sup>1</sup>
- Transitioned NDFOM from version 2.0 to 3.0 by modularizing and refactoring the backend Python code in addition to providing a cleaner, more intuitive HTML user interface for the customer<sup>1</sup>
- Programs: MCNP, Django, HTML, Javascript, SQL, Mercurial, Version Control, Python<sup>1</sup>
- Assisted in the Campaign-7 Project through the development, testing, validation, and verification of the combined radiation transport and finite-element analysis multi-physics capability<sup>3</sup>
- Developed unstructured mesh human phantoms for health physics applications with MCNP6 [Pub: ??]<sup>3</sup>
- Acquired DOE Q-level security clearance and Sigmas 1-10,11,12,13,15 and performed analysis on the W-88 system<sup>3</sup>
- Developed a software visualization package for finite element geometries in MCNP simulations<sup>4</sup>

### Medical College of Wisconsin

Milwaukee, Wisconsin

#### Graduate Research Assistant

*Department of Biophysics*

2012-2016<sup>1</sup>

#### Biophysics Representative, IT Liason

*Graduate Student Council*

2014-2016<sup>2</sup>

- Conducted background research and provided the preliminary results necessary to secure funding through a co-authored [R21](#) National Institutes of Health (NIH) grant<sup>1</sup>
- Patented a segmented reconstruction technique for artifact reduction in Magnetic Resonance Imaging [Pat: ??]<sup>1</sup>
- 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: ??,??,??]<sup>1</sup>
- Provided technical leadership and guidance on Information Technology (IT) needs to all MCW Graduate students as the system Liason<sup>2</sup>

### University of Wisconsin - Madison

Madison, Wisconsin

#### Student Research Assistant

*Department of Medical Physics*

2008-2011

#### Chapter President

*American Nuclear Society (ANS)*

2010-2011

- Assisted in research, modeling, and analysis of brachytherapy seed quality assurance methods
- Managed organizational duties and functionality of our ANS chapter, such as arranging speakers, conference travel, socials, workshops, and meetings
- Mentored students in Science Olympiad, science fairs, and obtaining Boy Scout merit badges

## Certifications

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## Areas of Expertise

### Physics/Engineering

- Nuclear Engineering
- Fourier Analysis
- Monte Carlo Methods
- Signal Processing
- Magnetic Resonance Imaging
- Regularization Methods
- Radiation Detectors
- Multi-physics coupling
- Computer Aided Engineering
- Finite Element Analysis

### Software

- MCNP
- Abaqus/CAE
- Linux
- Matplotlib
- Matlab
- MacOS
- Windows
- Microsoft Office
- VisIt
- RELAP

### Programming

- Python
- Bash
- $\text{\LaTeX}$
- Unit Testing
- Matlab
- Mercurial
- Git
- C/C++
- Fortran
- Java

### Other Skills

- Technical Writing
- Presentations
- Leadership
- Version Control
- File I/O
- Scripting
- Debugging
- Validation & Verification
- Server Management
- Server Hardware

### Key (Skill Level)

- Expert ● Intermediate ○ Beginner

## Funding Sources

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

## Awards & Honors

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## Affiliations

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## Education

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| MAY 2016 | <b>M. Sc, Biophysics</b> , <i>Medical College of Wisconsin, GPA: 3.80/4.0</i><br><a href="#">"Quantitative Susceptibility Mapping: Exploratory Development and Initiation of Processing Pipelines"</a>               |
| MAY 2011 | <b>M. Sc, Nuclear Engineering &amp; Engineering Physics</b> , <i>University of Wisconsin - Madison, GPA: 3.44/4.0</i><br><b>B. Sc, Nuclear Engineering</b> , <i>University of Wisconsin - Madison, GPA: 3.24/4.0</i> |

## Classes & Trainings

- I. "MCNP6 Intermediate Workshop", (Los Alamos New Mexico). May, 2016
- II. "CPR Certification Training", (Milwaukee, Wisconsin). May, 2015
- III. "General Electric MR Programming Workshop", (Madison, Wisconsin). Oct, 2014
- IV. "Dale Carnegie Training", (Los Alamos, New Mexico). August, 2011
- V. "Introduction to Abaqus", (Minneapolis, Minnesota). June, 2011
- VI. "Introduction to Python Programming", (Los Alamos, New Mexico). July, 2010

VII. "MCNP5 Beginner Workshop", (Los Alamos, New Mexico). May, 2010