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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/Post Master's	*NEN-5, Systems Design & Analysis*	2016-*Present*[1]
Graduate Research Assistant/Post Master's	*W-13, Advanced Engineering Analysis*	2011-2012[2]
Summer Intern	*XCP-3, Monte Carlo Codes*	2010 [3]

- Developing benchmarks and publishing reports on newly implemented features in MCNP [Pubs: 1,3,4,5][1]
- Modeling detector system responses using MCNP, Django, HTML, Javascript, and Python[1]
- Working with SQL databases, managing servers, and utilizing version control using Mercurial[1]
- Assisted in the development and testing of multi-physics analysis by coupling radiation transport results in MCNP with finite-element analysis in Abaqus/CAE[2]
- Developed unstructured mesh human phantoms for health physics applications with MCNP6 [Pub: 9][2]
- Developed a software visualization package for finite element geometries in MCNP simulations[3]

Medical College of Wisconsin — Milwaukee, Wisconsin

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

- Patented a segmented reconstruction technique for artifact reduction in MRI [Pat: i.]
- Collaborated with medical doctors and other clinical researchers to secure NIH grant funding
- Submitted abstracts and presented findings at various international conferences [Pubs: 6,7,8]
- Served on the Graduate Student Council as Biophysics representative and Information Technology liaison
- Collaborated with faculty, staff, and medical students to address and improve graduate school IT needs

University of Wisconsin - Madison — Madison, Wisconsin

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

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

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
- ● 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 Hardare

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

Awards & Honors

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Certifications

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Education

May 2016	**M. Sc, Biophysics**, *Medical College of Wisconsin, GPA: 3.80/4.0* "Quantitative Susceptibility Mapping: Exploratory Development and Initiation of Processing Pipelines"
May 2011	**M. Sc, Nuclear Engineering & Engineering Physics**, *University of Wisconsin - Madison, GPA: 3.44/4.0* **B. Sc, Nuclear Engineering**, *University of Wisconsin - Madison, GPA:3.24/4.0*

Publications & Presentations

1. [‡] Casey Anderson et al. "Neutron and Gamma Correlations using CGM in MCNP 6.2.0 (LA-UR-20353)". In: *Proceedings of the 27th American Nuclear Society Summer Meeting*. (San Fransisco, California). 2017, Link

2. [§] James Tutt and Gregg McKinney. "Speed and Memory Improvements to MCNP6 Delayed-Gamma Line Treatment (LA-UR-21050)". In: *Proceedings of the 27th American Nuclear Society Summer Meeting*. (San Fransisco, California). 2017

3. [‡] Casey Anderson et al. "Delta-ray production in MCNP6.2.0 (LA-UR-16-25402)". In: *24th Conference on Applications of Accelerators in Research and Industry*. (Forth Worth, Texas). Nov. 2016, Link

4. [‡] James Tutt, Casey Anderson, and Gregg McKinney. "Background-Source Cosmic-Photon Elevation Scaling and Cosmic-Neutron/Photon Date Scaling in MCNP6 (LA-UR-16-24928)". In: *24th Conference on Applications of Accelerators in Research and Industry*. (Forth Worth, Texas). Nov. 2016, Link

5. James Tutt, Casey Anderson, and Gregg McKinney. "Delayed-Gamma Energy Biasing with Exact Energy Sampling in MCNP6.2.0 (LA-UR-16-24057)". In: *Proceedings of the 26th American Nuclear Society Winter Meeting*. (Las Vegas, Nevada). Oct. 2016, Link

6. [||] Casey Anderson et al. "Volume-Paracellated Quantitative Susceptibility Mapping". In: *Proceedings of the International Society of Magnetic Resonance in Medicine 24th Conference*. (Singapore, Singapore). May 2016, Link

7. [†] Casey Anderson and Kevin Koch. "Volume-parcellated Quantitative Susceptibility Mapping of the Human Brain at 7T". in: *2015 Minnesota Workshop on High and Ultra-High Field Imaging*. (Minneapolis, Minnesota). Oct. 2015, Link

8. Casey Anderson, Kimberley Pechman, and Kathleen Schmainda. "Quantitative Susceptibility Mapping to Assess Iron Levels in Rat Brain Tumors". In: *Proceedings of the International Society of Magnetic Resonance in Medicine 22nd Conference*. (Milan, Italy). May 2014, Link

9. ‡ Casey Anderson, Tim Goorley, and Karen Kelley. "Mesh Human Phantoms with MCNP (LA-UR-12-01307)". In: *2012 3DS Simulia Community Conferece Proceedings*. (Providence, Rhode Island). May 2012, pp. 556–568, Link

‡Presentation Included; §Presentation Only; ||*Magna Cum Laude*

Patents

i. Kevin Koch and Casey Anderson. *System and method for localized processing of quantitative susceptibility maps in magnetic resonance imaging*. WO Patent App. PCT/US2016/038,723. Dec. 2016. URL: https://www.google.com/patents/WO2016209930A1?cl=en, Link

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