Personal Information
Address: 1599A 39th Street
Los Alamos, NM 87544
Phone: +1 (920) 858-8783
Email: 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

Professional Experience

Los Alamos National Laboratory — Los Alamos, New Mexico

Graduate Research Assistant	*NEN-5, Systems Design & Analysis*[1]	2016 - *Present*
Graduate Research Assistant	*ISR-1, Space Science & Applications*[2]	2016 - *Present*
Post Master's Research Assistant	*W-13, Advanced Engineering Analysis*[3]	2011 - 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: 5,6,8,9,10][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 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: 14][3]
- [*]Acquired DOE Q-level security clearance and assisted on the analysis of the W-88 weapons system[3]
- Created a software visualization package for finite element geometries in MCNP simulations[4]
- Utilized the high performance computing (HPC) systems and utilities for advanced physics simulations and analysis[1-4]

[*] Paperwork submitted June, 2016 for reinstatement of DOE Q-level clearance

Medical College of Wisconsin — Milwaukee, Wisconsin

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

- 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: i.][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: 11,12,13][1]
- Collected my own data, provided the necessary care for our experimental animals, and greatly expanded my laboratory and engineering skills by performing a variety of hands-on experimental and engineering tasks[1]
- Facilitated communication between students and staff 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
- ● Computational Physics
- ● Monte Carlo Methods
- ● Magnetic Resonance Imaging
- ● Modeling and Simulation
- ◓ Statistical Analysis
- ◓ High Performance Computing
- ◓ Signal/Image Processing
- ◓ Regularization Methods
- ◓ Radiation Detectors
- ◓ Multi-physics coupling
- ◓ Radioactive Material Handling
- ○ Computer Aided Engineering
- ○ LaGrangian Methods
- ○ Finite Element Analysis

Software
- ● MCNP
- ● Abaqus/CAE
- ● Linux
- ● Matplotlib
- ● Microsoft Office
- ● Google Docs
- ● Matlab
- ● MacOS
- ◓ Eclipse IDE
- ◓ Django Webframework
- ◓ PostgreSQL
- ◓ Windows
- ○ GADRAS
- ○ VisIt
- ○ RELAP

Programming
- ● Python
- ● Bash
- ● LaTeX
- ● Unit Testing
- ● Object Oriented
- ● Matlab
- ● Mercurial
- ● Git
- ◓ C/C++
- ◓ Fortran
- ◓ Debugging
- ○ HTML
- ○ Javascript
- ○ Java
- ○ Android

Other Skills
- ● Mentoring/Leadership
- ● Technical Writing
- ● Presentations
- ● Version Control
- ● File Input/Output
- ● Scripting
- ◓ Data Collection
- ◓ Data Analytics
- ◓ Data Visualization
- ◓ Validation & Verification
- ◓ SQL Databases
- ◓ XML/JSON File Format
- ◓ Working with Patients
- ◓ DICOM Image Analysis
- ○ Server Management
- ○ Animal Experimentation

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

Awards & Honors

SPOT Award	*Los Alamos National Laboratory*	August, 2017
Magna Cum Laude	*ISMRM Proceeding*	May, 2016
Silver Medal: Student Poster	*ISMRM Conference*	2014
Exelon Scholarship	*University of Wisconsin - Madison*	2009, 2010

Afilliations

American Nuclear Society (ANS)	2008-2012, 2016-*Present*
American Association of Physicists in Medicine (AAPM)	2009-2011, 2013-2016
International Society of Magnetic Resonance in Medicine (ISMRM)	2012-2016

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*	October, 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

References

A list of professional, academic, and personal references can be at https://app.box.com/v/andersonreferences

Publications & Presentations

1. "MCNP6.2 User's Manual". In: *LANL report: TBD* (2017)
2. *Useful prompt radiation applications and capabilities with MCNP6 (LA-CP-12-00490)*. Nuclear Weapons Effects User Group. 2012
3. Nuclear Explosives Design Physics Conference. "MCNP6 Efforts for EMP, atmospheric disperal, and unstructured mesh tracking (LA-CP-01705)". In: *Proceedings of the Nuclear Explovies Design Physics Conference 2011*. (Los Alamos National Laboratory, Los Alamos, New Mexico). Oct. 2017
4. Casey Anderson, Karen Kelley, and Tim Goorley. "Unstructured mesh human phantoms with MCNP". in: *Transactions of the American Nuclear Society* 106 (2012), pp. 50–51
5. Casey Anderson and Gregg McKinney. "MCNP6 Built-in High Level Detector Responses". In: *2017 IEEE Nuclear Science Symposium and Medical Imaging Conference*. (Atlanta, Georgia). Oct. 2017,
6. ‡ 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
7. § 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
8. ‡ 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
9. ‡ 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
10. 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
11. || 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
12. † 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
13. 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
14. ‡ 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

Personal Information
Address: 1599A 39th Street
Los Alamos, NM 87544
Phone: +1 (920) 858-8783
Email: 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

References

Name	Dates	Affiliation	Email	Phone
Advisors				
Brent Budden	2016 - *Present*	*ISR-1, LANL*[*]	bbudden@lanl.gov	505-695-6236
Matt Griffin	2016 - *Present*	*NEN-5, LANL*	griffin@lanl.gov	505-500-7010
Russell Johns	2016 - *Present*	*NEN-5, LANL*	johns@lanl.gov	505-695-5201
Kevin M. Koch	2014 - 2016	*Radiology, MCW*[†]	kmkoch@mcw.edu	414-955-4034
Kathleen Schmainda	2012 - 2016	*Biophysics, MCW*	kathleen@mcw.edu	414-955-4051
Karen C. Kelley	2011 - 2012	*W-13, LANL*	corzine@lanl.gov	505-667-8843
Steve McCready	2011 - 2012	*W-13, LANL*	mccready@lanl.gov	505-665-6991
Tim Goorley	2011 - 2012	*XCP-3, LANL*	jgoorley@lanl.gov	505-665-8417
Roger Martz	2010 - 2010	*XCP-3, LANL*	martz@lanl.gov	505-664-0900
Bruce Thomadsen	2009 - 2011	*Medical Physics, UW*[‡]	brthomad@wisc.edu	608-263-4183
Academic				
Andrew Nencka	2012 - 2016	*Radiology, MCW*	asn@mcw.edu	414-955-4766
L. Tugan Muftuler	2012 - 2016	*Neurosurgery, MCW*	lmuftuler@mcw.edu	414-955-7627
Candice Klug	2012 - 2016	*Biophysics, MCW*	candice@mcw.edu	414-955-4015
Neil Hogg	2012 - 2016	*Biophysics, MCW*	nhogg@mcw.edu	414-955-4012
Susan Barnes	2012 - 2016	*Graduate School, MCW*	sbarnes@mcw.edu	414-955-8218
Michael Corradini	2008 - 2011	*Nuclear Engineering, UW*	corradini@engr.wisc.edu	608-263-1648
Douglass Henderson	2008 - 2011	*Nuclear Engineering, UW*	henderson@engr.wisc.edu	608-263-0808
Paul Wilson	2008 - 2011	*Nuclear Engineering, UW*	wilsonp@engr.wisc.edu	608-263-0807
Professional / Co-workers				
Garret McMath	2016 - *Present*	*NEN-5, LANL*	gem@lanl.gov	505-690-0854
James Tutt	2016 - *Present*	*NEN-5, LANL*	jtutt@lanl.gov	214-207-0841
Mona Al-Gizawiy	2012 - 2016	*Radiology, MCW*	malgizawiy@mcw.edu	414-955-7491
Alex Cohen	2012 - 2016	*Biophysics, MCW*	acohen@mcw.edu	414-955-4923
Ali Ersoz	2012 - 2016	*Biophysics, MCW*	ersozali@gmail.com	949-413-9760
Shiv Kaushik	2015 - 2016	*Radiology, MCW*	suryanarayanan.kaushik@ge.com	919-381-2549
Robin Karr	2015 - 2016	*Radiology, MCW*	rkarr@mcw.edu	414-238-3638
Pete LaViolette	2012 - 2016	*Biophysics, MCW*	plaviole@mcw.edu	414-456-7490
Chelsea D'Angelo	2010 - 2012	*XCP-3/W-13, LANL*	cdangelo27@gmail.com	724-875-8231
Personal Friends				
Bryan Arnold	2000 - *Present*	*Personal*	arnoldb@gmail.com	920-716-8955
Lukas Loveland	2007 - *Present*	*Personal*	lukas.loveland@gmail.com	715-498-1760
Justin Bric	2012 - *Present*	*Personal*	justin.bric@gmail.com	715-581-0331
Jack Trebelhorn	2012 - *Present*	*Personal*	treb0040@gmail.com	320-491-7509
Danny Higgins	2007 - *Present*	*Personal*	dphiggins34@gmail.com	920-716-8586
Logan Thein	2007 - *Present*	*Personal*	loganthein@gmail.com	608-609-0250

[*]*MCW*: Medical College of Wisconsin, [†]*LANL*: Los Alamos National Laboratory, [‡]*UW*: University of Wisconsin - Madison