

Joseph M. Carmack

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Profile

Researcher with a background in computational science seeking employment opportunities where I can obtain research and development experience in machine learning and artificial intelligence.

Skills

- Software Development: C++, Python, Git
- Machine Learning and AI: Using & developing deep learning techniques in supervised, un-supervised, and reinforcement learning contexts.
- Software acceleration techniques, including parallel computing (MPI, CUDA).
- Data Analysis and Visualization: Paraview, Matlab, Python (Numpy, Scipy, Matplotlib etc.)
- Scripting Languages: Python, Bash

Education

University of Arkansas

FAYETTEVILLE, AR

PhD in Mechanical Engineering, GPA 4.0

2013 – 2018

- Graduate Coursework Highlights: Artificial Intelligence, Machine Learning, GPU Programming, Concurrent Computing, Numerical Methods, Entrepreneurship, Einstein's Theories of Relativity.

Brigham Young University-Idaho

REXBURG, ID

Bachelor of Science in Physics (Minor Mathematics), GPA 3.87

2009 – 2013

- Coursework Highlights: Quantum Mechanics, Scientific Computing, Software Development
- Sigma Pi Sigma nomination (top 5% of my class).

Research Experience (Chronological)

Millett Research Group

FAYETTEVILLE, AR

Graduate Research Assistant

Aug '13 – present

- Graduate research in mesoscale materials modeling.
- Design and development of Phase Field/Brownian dynamics C++ simulation and post-processing codes for heterogeneous HPC architectures.
- Forming and testing hypotheses using computational models probed via computer simulation.
- Extensive data analysis and visualization mostly done using custom python and paraview scripts.
- Multiple publications (DOI: 10.1063/1.4932191, 10.1039/c7sm00317j), copies available upon request.
- Presentations: Three conference talks at international conferences and one conference poster.

Idaho National Lab Research Intern

IDAHO FALLS, ID

Research Assistant

May '13 – Feb '14

- Studied the properties of grain boundaries in Uranium Dioxide nuclear fuel via atomistic simulation.
- Gave an oral presentation describing research results at an international research conference (TMS 2014).

Brigham Young University

PROVO, UT

Physics REU

May '12 – Aug '12

- Research project in condensed matter crystallography. Applied group theory based symmetry analysis to identify complex magnetic crystal structures.

Honors and Awards: Doctoral Academy Fellowship (\$10,000/yr for 4 years), 1st Place in university-wide poster competition, Eagle Scout

Interests (non-exhaustive): The study of intelligence (AI, the brain, consciousness), Mandarin Chinese (I lived in Taiwan for 2 years), teaching (full-course instructor for undergraduate numerical methods course), fundamental physics, volunteer service, physical fitness, open source, homesteading, piano and ukulele, classical education,...