Joseph M. Carmack

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Profile

I am a researcher with a background in computational science seeking opportunities to do research in the fields of machine learning, artificial intelligence, and cognitive computing.

Skills

- Programming Languages: C++, Fortran, Python, Matlab
- Machine Learning: training artificial neural networks with large data sets.
- Software acceleration techniques, including parallel computing (MPI, CUDA).
- Data Visualization: Paraview, Matlab, Matplotlib
- Very comfortable with the command-line interface.

Education

University of Arkansas — Fayetteville, AR
PhD in Mechanical Engineering, GPA 4.0 *2013 – 2018*
- Graduate coursework highlights: Machine Learning, GPU Programming, Concurrent Computing, Advanced Numerical Methods, Differential Equations, Einstien's Theories of Relativity.

Brigham Young University-Idaho — Rexburg, ID
Bachelor of Science in Physics (Minor Mathematics), GPA 3.87 *2009 – 2013*
- Classwork Highlights: Quantum Mechanics, Scientific Computing, Software Development, Numerical Analysis, PDEs
- 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.
- Development and execution of Phase Field/Brownian dynamics C++ and Fortran codes for heterogeneous HPC architectures.
- Forming and testing hypotheses using computational models.
- Experience developing simulation post processors and conducting extensive data analysis (Python/Matlab/Paraview).
- Two publications in top journals for materials research (DOI: 10.1063/1.4932191, 10.1039/c7sm00317j)
- Presentations: Two 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 competion, Eagle Scout

Interests (non-exhaustive): Hobby programming, neuroscience, machine learning, artificial intelligence, evolution, philosophy, math, physics, reading, weight lifting, other cultures, parenting (I have 3 kids), teaching, making tutorial videos, hiking, camping, cooking, music, and developing other new interests.