Michael M. Pozulp

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Lawrence Livermore National Laboratory
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Interests

Scientific Computing, Monte Carlo, Compilers

Education

University of California, Davis   Davis, CA   Expected May 2025
PhD in Computer Science

The College of William & Mary   Williamsburg, VA   May 2015
Bachelor of Science, *magna cum laude*
Major: Computer Science
Minor: Economics
GPA 3.75/4.00

Presentations and Publications

- **Pozulp, M**. (2019). "1D Transport Using Neural Nets, SN, and MC," LLNL-CONF-772639. LLNL-PRES-787894. Paper and presentation at M&C 2019, Portland, OR, 25-29 August.
- **Pozulp, M**. (2017). "Introduction to Monte Carlo," LLNL-PRES-734172. Presented at the College of William & Mary Math Department Colloquium, Williamsburg, VA 20 October.
- Kimko, J., **Pozulp, M**., et al. (2017). "Porting the Opacity Client Library to a CPU-GPU Cluster Using OpenMP4.5," LLNL-POST-735790. Poster presented at Supercomputing 2017, Denver, CO, 13-16 November.
- **Pozulp, M**., et al. (2016). "Optimizing Application I/O by Leveraging the Storage Hierarchy Using the Scalable Checkpoint Restart Library with a Monte Carlo Particle Transport Application on the Trinity Advanced Computing System," LLNL-POST-698037. Poster presented at Supercomputing 2016, Salt Lake City, UT, 14-17 November.
- Mohror, K. and **Pozulp, M**. (2016). "Performance Portability for Burst Buffers with the Scalable Checkpoint/Restart Library (SCR)," LLNL-PRES-689447. Oral presentation at the Department of Energy Centers of Excellence Performance Portability Meeting, Glendale, AZ, 19-21 April.
- **Pozulp, M**., (2014). "Creating a Framework for Systematic Benchmarking of High Performance Computing Systems." Poster presented at Supercomputing 2014, New Orleans, LA 17-20 November.

Work Experience

Lawrence Livermore National Lab   Livermore, CA   July 2015 – Present
Position: Computer Scientist
- Software development for the Monte Carlo Transport Project

W&M High Performance Computing   Williamsburg, VA   February 2012 – May 2015
Position: Undergraduate Assistant to High Performance Computing
- Developed a distributed-memory parallel N-1 and N-N I/O performance benchmark using MPI
- Performed STREAM memory benchmarking, code timing, and cycle counting
- Supported HPC applications with data visualization and performance refactoring
- Assembly/maintenance of diverse CPU + GPU distributed-memory compute clusters, totaling 900+ cores and 21 TFLOP/s theoretical peak performance
- Developed graphical tools for monitoring jobs and node statistics

NASA Langley Research Center   Hampton, VA   January – May 2014
Position: UAV Engineering Intern
- Developed ground control station that controls UAVs with MAVLink transmissions and collects ADS-B, GPS, and other RF data from UAVs to create a live display of UAVs in the local airspace

- Performed Hardware-In-The-Loop Simulation tests of ground control station using autopilot boards and commercial flight simulator
- Prepared hardware/software systems for multi-rotor and fixed-wing aircraft

NASA Ames Research Center   Moffett Field, CA   May – August 2013
Position: Supercomputing Research Intern
- Investigated performance scaling in four generations of Intel Xeon processors running the NASA Parallel Benchmarks on top-20 supercomputer Pleiades
- Researched effects of MPI communication traffic across Pleiades interconnect

Computer Skills

- C/C++, Python, Java, R, Bash, MPI, OpenMP, CUDA, Git/Github, LLVM
- Linux, OS X, Windows, Solaris, Android, Web

Honors, Awards, and Memberships

- Argonne Training Program in Extreme Scale Computing (ATPESC), Attendee   August 2016
- Stanford CS148 Raytracing Project, 2nd Place   December 2015
- Phi Mu Epsilon Math Honors Fraternity, Student Member   2013 - 2015
- Association for Computing Machinery (ACM), Student Member   2013 - 2015
- W&M Small Hall Makerspace Grant Recipient   ($700)   May 2014
- ACM Student Research Competition Travel Award   ($500)   September 2014
- NASA Ames Poster Contest, 1st Place   August 2013
- Virginia Space Grant Consortium Grant Recipient   ($6750)   June 2013

Technical Courses

University of California, Davis
- Network Architecture & Resource Management (EEC 273/ECS258)   Fall 2018
- Quantum Mechanics (PHY115A)   Spring 2017
- Analytical Mechanics II (PHY 105B)   Winter 2017
- Analytical Mechanics I (PHY 105A)   Fall 2016

University of California, Berkeley
- Numerical Simulation in Radiation Transport (NE 255)   Fall 2018

University of California, San Diego
- High Energy Density Physics (MAE 207)   Fall 2017

Stanford University
- Partial Differential Equations in Engineering (CME 204)   Winter 2018
- Compilers (CS 143)   Spring 2016
- Introduction to Computer Graphics (CS 148)   Fall 2015

The College of William & Mary
- Random Walks in Biology (APSC 456)   Spring 2015
- Reliability (CS 668)   Spring 2015
- General Physics II (PHYS 102H)   Spring 2015
- Analog Electronics (PHYS 252)   Spring 2015
- Ordinary Differential Equations (MATH 302)   Fall 2014
- General Physics I (PHYS 101H)   Fall 2014
- General Physics I (PHYS 101H)   Fall 2014
- Digital Electronics (PHYS 351)   Fall 2014
- Finite Automata (CS 423)   Fall 2013
- Operating Systems (CS 424)   Fall 2013
- Applied Financial Derivatives (ECON 415)   Fall 2013
- Probability (MATH 401)   Fall 2013
- Numerical Analysis (MATH 413)   Fall 2013
- Accounting (BUAD 203)   Spring 2013
- Programming Languages (CS 312)   Spring 2013
- Systems Programming (CS 415)   Spring 2013

- Econometrics (ECON 308)   Spring 2013
- Multivariable Calculus (MATH 212)   Spring 2013
- Algorithms (CS 303)   Fall 2012
- Computer Organization (CS 304)   Fall 2012
- Intermediate Microeconomics (ECON 303)   Fall 2012
- Software Development (CS 301)   Spring 2012
- Database Systems (CS 321)   Spring 2012
- Intermediate Macroeconomics (ECON 304)   Spring 2012
- Linear Algebra (MATH 211)   Spring 2012
- Data Structures (CS 241)   Fall 2011
- Discrete Structures (CS 243)   Fall 2011