Neil McGlohon, Ph.D.

CONTACT

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www.mcglo.dev
github.com/nmcglohon

EDUCATION

Ph.D., Computer Science   **July 2021**
Rensselaer Polytechnic Institute, Troy, New York USA
    Research Focus: High Performance/Parallel Computing

M.S., Computer Science   **May 2016**
Rensselaer Polytechnic Institute, Troy, New York USA
    Research Focus: Distributed Computing, Machine Learning

Bachelor of Science in Physics   **May 2014**
University of Oklahoma, Norman, Oklahoma USA
    Minor: Computer Science

RELEVANT SKILLS

- Self-motivated, fast-learner, quick to ramp-up on new topics
- Strong and flexible critical-thinking, problem solving, and analysis skills
- Comfortable in parallel, distributed, or clustered computing environments

- Languages and Technologies: C/C++, Python, Java, MPI, MATLAB, Linux, Scripting, SLURM, Jupyter, GDB, Git, Tensorflow/PyTorch, WandB, Docker, AWS, LaTeX

FEATURED PROFESSIONAL EXPERIENCE

- Maintained open-source repository for massively parallel simulation of high performance computing communication networks used by researchers from institutions including Argonne National Laboratory. Rigorously reviewed pull requests to ensure stability prior to merging.
- Adapted and executed machine learning benchmarks from the MLCommons (MLPerf) organization for research purposes with IBM AI Hardware Center for IBM Power9 and x86 supercomputer clusters.
- Mentored graduate students on their research and academic careers. Domain expert resource and mentor for undergraduate and gradutate students in projects associated with an NSF funded cyberteam program spanning five states.
- Published 15 peer-reviewed papers in various conferences and journals in areas of High Performance Computing, Parallel Discrete Event Simulation, Neuromorphic Computing, and Machine Learning. Led many of the associated research projects, orchestrating experiment design, data acquisition and analysis. Presented papers and their findings at conferences internationally. Full list available on personal website.

EMPLOYMENT EXPERIENCE

Rensselaer Polytechnic Institute, Center for Computational Innovations
Troy, New York USA

Research Scientist   **July 2021 - Present**
Senior personnel of center; performs complex and leading-edge scientific research and development. Main responsibilities include software development for simulation of high performance composable system technologies for facilitation of next-generation AI hardware platforms. External member of the IBM AI Hardware Center.
Designs and implements procedures for benchmarking of AI accelerated supercomputing hardware to guide future acquisitions and demonstrate capability of existing systems.
Triages and prioritizes supercomputing center needs for research facilitation of thousands of users. Identifies and pursues research collaboration opportunities with corporate and government partners in coordination with center director.

Software Engineer   **February 2020 - July 2021**
Software development and research relating to the field of high performance computing. Worked

with external research partners in a collaborative environment to advance the state of the art. Primary maintainer for grant sponsored open-source high performance computing network interconnect simulation framework. Participated as guest lecturer on the topic of the Message Passing Interface (MPI) to Parallel Computing course at RPI.

Cisco Meraki, San Francisco, California USA

Software Engineering Intern   **May - August 2017**

Research and development of a thread-safe and lockless read/write HashTable using Read-Copy-Update (RCU) techniques. Submitted to open-source repository for the Software Defined Router: Click. Experience with using JIRA, Gerrit, and associated development tools.

SCIENTIFIC SERVICE

2020-Present – NSF CAREERS Cyberteam Program
Steering Committee Member

2022 – ACM SIGSIM Principles of Advanced Discrete Simulation (PADS)
Organizing Committee, Ph.D. Colloquium Co-Chair

2022 – ACM SIGPLAN Benchmarking in the Data Center: Expanding to the Cloud (BID)
Program Committe Member

2022 – IEEE IPDPS Workshop on Scalable Deep Learning over Parallel and Distributed Infrastructure (ScaDL)
Program Committee Member

2019-Present – Peer-reviewer for 6 ACM/IEEE computing conferences and journals.

ACADEMIC EXPERIENCE

Rensselaer Polytechnic Institute, Troy, New York USA

Graduate Research Assistant   **August 2014 - July 2021**

M.S. and Ph.D. research, graduate level coursework and projects. Primary area of research: High-Performance/Parallel Computing. Other areas of interest: parallel and distributed systems, cloud computing, machine learning, neuromorphic computing and simulation. Contributor to ROSS parallel discrete event simulation framework. Presented on work both for conference publications as well as related invited talks.

Teaching Assistant: Computer Science I   **August - December 2014**

Support to professor during course teaching fundamentals of computer science using Python. Worked in group of eight teaching assistants. Duties included facilitating two lab discussion sections a week, hosting office hours, grading homework and exams, and monitoring/responding to question on the course online forum.

University of Oklahoma, Norman, Oklahoma USA

Undergraduate Research Assistant   **May 2012 - May 2014**

Continued REU research, performing a closer inspection of electrical transport properties of antimony measured at cryogenic temperatures. Worked on developing and refining a method for measuring differential conductance of a material – allowing for a greater understanding of the interface between a topological insulator and a superconductor. Advisor: Dr. Sheena Murphy.

National Science Foundation REU   **May - August 2012, 2013**

Participated in condensed matter research and analysis under an NSF Materials Research Science and Engineering Center (MRSEC) grant from advisor: Dr. Sheena Murphy.