

# Luke Logan

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[My Website](#) • [Google Scholar](#) • [Linkedin](#)

## SUMMARY

Passionate systems researcher and software engineer seeking agile teams to contribute to improving the programmability, portability, and performance of distributed systems.

## EDUCATION

ILLINOIS INSTITUTE OF TECHNOLOGY Chicago, IL

- Bachelor of Science in Applied Mathematics, GPA: 3.76 2016 - 2020
- Master of Computer Science, GPA: 3.66 2016 - 2020
- Doctor of Philosophy in Computer Science, Current GPA: 3.82 Exp. 2024

## RESEARCH PROJECTS

LabStor: A Modular and Extensible Platform for Developing I/O Stacks in Userspace Spring 2022

- Linux I/O stack suffers from performance and programmability issues in HPC/Cloud
- [Designed/implemented](#) a platform (18K C/C++) for easily developing new I/O stacks
- Provides tools and APIs for bypassing overheads and monitoring application I/O patterns
- I/O stacks developed in LabStor improve I/O speed by up to 60% in a distributed setting

pMEMCPY

Summer 2021

- Existing I/O libraries are complex and don't utilize special APIs for persistent memory (PMEM)
- [Designed/implemented](#) a parallel I/O library (C/C++) for storing data structures in PMEM
- pMEMCPY is up to 2x faster than other popular parallel I/O libraries and reduces LOC by 92%

## SELECTED PUBLICATIONS

- **L. Logan**, J. Cernuda Garcia, J. Lofstead, X.-H. Sun, A. Kougkas. "LabStor: A Modular and Extensible Platform for Developing High-Performance, Customized I/O Stacks in Userspace". The 2022 International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'22), November 14–17, 2022 (to appear).
- **L. Logan**, J. Lofstead, S. Levy, P. Widener, X-H. Sun, A. Kougkas. "pMEMCPY: a simple, lightweight, and portable I/O library for storing data in persistent memory." The 2021 IEEE International Conference on Cluster Computing (CLUSTER'21), September 7-10, 2021, Virtual Meeting. IEEE, 2021. DOI: 10.1109/Cluster48925.2021.00098.

## TEACHING EXPERIENCE

- Teaching Assistant for Discrete Mathematics Spring 2022
- Student Project Supervisor for Advanced Operating Systems Fall 2020
- Scalable Computing Software Laboratory Technical Trainer Fall 2020
  - How to to deploy PFS and run various HPC/Cloud workloads

## SKILLS

Programming: C/C++, Python, MPI, OpenMP, Linux Kernel Modules, PMDK, SPDK, DPDK, HDF5, Adios, TensorFlow, PyTorch, SciPy, Pandas, Bash, Java, R, SQL, Android, HTML, CSS, JavaScript

Software: Git, Spack, CMake, CLion, Qemu, MongoDB, Redis, Spark, Google Cloud/Colab, Chameleon Cloud, AWS, VirtualBox, Hadoop

## ACTIVITIES, HONORS, and AWARDS

- Web Administrator at Scalable Computing Software Laboratory 2020 - 2022
- Student Volunteer at Conference for HPC, Networking, Storage, and Analysis (SC) 2020 - 2021
- Dean's List at IIT 2016 - 2020