Fahim Tahmid Chowdhury

Mobile: +1(786)-406/2617
Skype: fahim.tahmid.chowdhury
E-mail: fchowdhu@cs.fsu.edu
Website: http://ww2.cs.fsu.edu/~fchowdhu

EDUCATION	**Florida State University**, Tallahassee, Florida Ph.D. candidate, Computer Science, currently enrolled, *CGPA* **4.00**/4.00 **Bangladesh University of Engineering and Technology**, Dhaka, Bangladesh BSc., Computer Science and Engineering, February 2013, *CGPA* **3.54**/4.00
RESEARCH INTERESTS	• **High Performance Computing (HPC) Systems:** HPC I/O Optimization, Heterogeneous Storage Stack, Domain-specific Systems Design, Parallel File Systems, Burst Buffer File Systems, HPC Workflow, Performance Analysis • **Artificial Intelligence:** Deep Learning at Scale, Reinforcement Learning
RESEARCH EXPERIENCE	**Department of Computer Science, Florida State University** ***Graduate Research Assistant*** **August 2017 - Present** - Ph.D. student researcher at *Computer Architecture and SysTems Research Lab (CASTL)* supervised by *Professor Dr. Weikuan Yu* **Center for Applied Scientific Computing (CASC)**, Lawrence Livermore National Laboratory (LLNL) ***Student Intern*** **May 2019 - August 2019** - Worked on optimizing I/O strategies in cutting-edge HPC application workflows as a summer intern in the Data Analysis Group at CASC. Published a research poster at SC'19. **National Energy Research Scientific Computing Center (NERSC)**, Lawrence Berkeley National Laboratory (LBNL), Berkeley, California ***Student Assistant*** **May 2018 - August 2018** - Worked as a summer intern in the Data Analytics and Services group at NERSC on analyzing scalable data pipeline for distributed deep learning. Published a work-in-progress abstract at PDSW-DISCS'18. **NERSC**, LBNL ***LBNL Affiliate*** **August 2018 - August 2019** - Extended the summer internship project on distributed deep learning applications' data pipeline
RESEARCH PROJECTS	• **HPC Workflow I/O Optimization:** Built an Emulator during internship at CASC to analyze different HPC I/O patterns, e.g., Deep Learning Training I/O, Checkpoint/Restart, Producer-Consumer, etc. Developing a middleware to implement optimization strategies for application workflows. • **BeeGFS Performance Evaluation:** Published a research paper on the performance evaluation of BeeGFS parallel cluster file system using different I/O and metadata performance benchmarks, and deep learning applications atop TensorFlow, Horovod and LBANN. Working on analyzing the fitness of BeeGFS On Demand (BeeOND) as an ephemeral burst buffer file system. • **Scalable Data Pipeline for Distributed Deep Learning:** Analyzed and profiled I/O behavior posed by cutting-edge deep learning applications at scale by using a logging framework developed during internship at NERSC. Pinpointed I/O bottlenecks caused by metadata overhead in deep learning training.
PUBLICATIONS	- **F. Chowdhury**, F. Di Natale, A. Moody, E. Gonsiorowski, K. Mohror, and W. Yu. "Understanding I/O Behavior in Scientific Workflows on High Performance Computing Systems," in Proceedings of the *International Conference on High Performance Computing, Networking, Storage and Analysis 2019 (SC19)*, Regular Poster, Nov. 2019. - **F. Chowdhury**, Y. Zhu, T. Heer, S. Paredes, A. Moody, R. Goldstone, K. Mohror, and W. Yu, "I/O Characterization and Performance Evaluation of BeeGFS for Deep Learning," in Proceedings of the *48th International Conference on Parallel Processing (ICPP 2019)*, Research Paper, Aug. 2019. - **F. Chowdhury**, J. Liu, Q. Koziol, T. Kurth, S. Farrell, S. Byna, Prabhat, and W. Yu, "Initial Characterization of I/O in Large-Scale Deep Learning Applications," in *SC18, 3RD Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems (PDSW-DISCS 2018)*, Work-in-progress (WIP) Abstract, Nov. 2018. - Y. Zhu, **F. Chowdhury**, H. Fu, A. Moody, K. Mohror, K. Sato, and W. Yu, "Entropy-Aware I/O Pipelining for Large-Scale Deep Learning on HPC Systems," in *IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2018)*, Research Paper, Sep. 2018.
TECHNICAL SKILLS	- Programming Languages: **C/C++**, **Python**, C#, MATLAB, Java, Javascript - Libraries: **MPI**, **HDF5**, BSD sockets, WinSock, OpenGL, Boost, Windows API, Google Test - Frameworks: **TensorFlow**, **Horovod**, **LBANN**, Qt Framework, MFC, .NET Framework - Distributed File Systems: **BeeGFS**, Lustre, BurstFS, UnifyCR