

## Fahim Tahmid Chowdhury

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OBJECTIVE	To satisfy the thirst for innovation and add values to the society while building up career in research assisted by engineering acumen	
EDUCATION	<b>Florida State University</b> , Tallahassee, Florida PhD, <b>Computer Science</b> , Currently studying, <i>CGPA 4.00/4.00</i> <b>Bangladesh University of Engineering and Technology</b> , Dhaka, Bangladesh Bachelor of Science, <b>Computer Science and Engineering</b> , February 2013, <i>CGPA 3.54/4.00</i> <b>Notre Dame College</b> , Dhaka, Bangladesh Higher Secondary Certificate(HSC), Science, 2007, <i>GPA 5.00/5.00</i> <b>Ispahani Public School and College</b> , Chittagong, Bangladesh Secondary School Certificate(SSC), Science, 2005, <i>GPA 5.00/5.00</i>	
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• <b>HPC Systems:</b> HPC I/O Optimization, Heterogeneous Storage Systems, Parallel File Systems, Burst Buffer File Systems, HPC Workflow, Performance Analysis</li><li>• <b>Artificial Intelligence:</b> Deep Learning at Scale, Reinforcement Learning</li></ul>	
RESEARCH EXPERIENCE	<b>Department of Computer Science, Florida State University</b> , Tallahassee, Florida <i>Graduate Research Assistant</i> <b>August, 2017 - Present</b> Working in <b>Computer Architecture and SysTems Research Lab (CASTL)</b> under the supervision of <i>Professor Dr. Weikuan Yu</i>  <b>Center for Applied Scientific Computing (CASC)</b> , Lawrence Livermore National Laboratory (LLNL), Livermore, California <i>Student Intern</i> <b>May, 2019 - August, 2019</b> Worked as a summer intern in the <b>Data Analysis Group</b> at CASC on a project for optimizing I/O behavior in HPC workflow  <b>National Energy Research Scientific Computing Center (NERSC)</b> , Lawrence Berkeley National Laboratory (LBNL), Berkeley, California <i>Student Assistant</i> <b>May, 2018 - August, 2018</b> Worked as a summer intern in the <b>Data Analytics and Services</b> group at NERSC on a project for analyzing scalable data pipeline for distributed deep learning  <b>NERSC, LBNL</b> , Berkeley, California <i>LBNL Affiliate</i> <b>August, 2018 - August, 2019</b> Continued the summer internship project on distributed deep learning applications' data pipeline	
PUBLICATIONS	<ul style="list-style-type: none"><li>- <b>F. Chowdhury</b>, 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 <i>48th International Conference on Parallel Processing (ICPP 2019)</i>, 2019. ACM, New York, NY, USA, Article 80, 10 pages. DOI: <a href="https://doi.org/10.1145/3337821.3337902">https://doi.org/10.1145/3337821.3337902</a></li><li>- <b>F. Chowdhury</b>, 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 <i>SC'18, 3RD Joint International Workshop on Parallel Data Storage &amp; Data Intensive Scalable Computing Systems (PDSW-DISCS 2018)</i>, 2018. - Work-in-progress (WIP) Abstract</li><li>- Y. Zhu, <b>F. Chowdhury</b>, 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 <i>IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2018)</i>, 2018.</li></ul>	

	<ul style="list-style-type: none"> <li>- Y. Zhu, <b>F. Chowdhury</b>, H. Fu, A. Moody, K. Mohror, K. Sato, and W. Yu. Multi-Client DeepIO for Large-Scale Deep Learning on HPC Systems. In Proceedings of the <i>International Conference on High Performance Computing, Networking, Storage and Analysis 2018 (SC18)</i>, Regular Poster, Nov. 2018.</li> </ul>
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>- Programming Languages: <b>C/C++</b>, <b>Python</b>, <b>C#</b>, Matlab, Java, Javascript</li> <li>- Libraries: <b>MPI</b>, <b>HDF5</b>, BSD sockets, WinSock, Opengl, Boost, Windows API, Google Test</li> <li>- Frameworks: <b>TensorFlow</b>, <b>Horovod</b>, <b>LBANN</b>, Qt Framework, MFC, .NET Framework</li> <li>- Distributed File Systems: BurstFS, <b>UnifyCR</b>, <b>BeeGFS</b>, Lustre, Octopus</li> <li>- I/O Benchmark Tools: IOR, MDTest, DD, IOZone, Bonnie++</li> <li>- Profiling Tools: <b>Darshan</b>, <b>TensorFlow Timeline</b></li> <li>- Database Management Systems: MySQL, Oracle, SQL Server</li> <li>- Design Tools: EDraw, GraphViz, Rational Rose</li> <li>- Documentation Tools: L<sup>A</sup>T<sub>E</sub>X, Doxygen</li> <li>- Project Management Applications: Jira, Redmine, Mantis, Microsoft Project</li> <li>- Version Control Systems: Git, Mercurial, SVN</li> <li>- Operating Systems: Unix/Linux, Windows</li> </ul>
RESEARCH PROJECTS	<ul style="list-style-type: none"> <li>• <b>HPC Workflow I/O Optimization:</b> Working on a collaboration project with <a href="#">LLNL</a> for pinpointing HPC I/O issues and optimizing HPC workflow management based on the findings, e.g., DL Training I/O, Checkpoint/Restart, Producer-Consumer, etc.</li> <li>• <b>BeeGFS Performance Evaluation:</b> Serving a collaboration project with <a href="#">LLNL</a> for evaluating the performance of <a href="#">BeeGFS</a> parallel cluster file system using different I/O and metadata performance benchmarks, and Deep Learning applications</li> <li>• <b>Burst Buffer File System:</b> Working on a project for enhancing a burst-buffer file system (i.e. <a href="#">UnifyCR</a>) by adding an improved Garbage Collection module.</li> <li>• <b>Specialized File System for Large Datasets of Deep Neural Network:</b> Assisting a collaboration project with <a href="#">LLNL</a> for designing a file system for large datasets of Deep Neural Network by studying the data shuffling mechanism in TensorFlow and Caffe</li> <li>• <b>Scalable Data Pipeline for Distributed Deep Learning:</b> Worked on a project with <a href="#">NERSC</a> for profiling I/O in the distributed deep learning applications to explore the I/O bottlenecks, and design and implement an optimization strategy to overcome the possible bottlenecks</li> </ul>
INDUSTRY EXPERIENCE	<p><a href="#">IPvision Canada Inc</a>, Dhaka, Bangladesh  <b>Software Analyst</b> <span style="float: right;"><b>October, 2016 - July, 2017</b></span>          Worked as a member of the development team for developing the SDK of the social networking platform named <a href="#">ringID</a></p> <p><a href="#">Vizrt</a>, Dhaka, Bangladesh  <b>Software Engineer</b> <span style="float: right;"><b>July, 2014 - September, 2016</b></span>          Served as a member of the <a href="#">Sports Solutions</a> R&amp;D team in Dhaka, mostly worked on <a href="#">Viz Libero</a> software</p> <p><a href="#">Enosis Solutions</a>, Dhaka, Bangladesh  <b>Software Engineer</b> <span style="float: right;"><b>February, 2013 - June, 2014</b></span>          Worked as a member of the development team for <a href="#">Visual-Host</a> which is an offshore SDK framework of a Computer Aided Engineering(CAE) software <a href="#">Visual-Environment</a></p>
UNDERGRADUATE THESIS	<p><b>Design of a Surveillance System for Dhaka City</b>, <i>Graph Drawing and Information Visualization Lab</i>, CSE, BUET under the supervision of <a href="#">Dr. Md. Saidur Rahman</a></p> <ul style="list-style-type: none"> <li>- Designed and simulated an integrated system to monitor and control the traffic system of Dhaka</li> <li>- Applied different shortest path algorithms on Dhaka city map</li> <li>- Proposed locations for police-boxes on the prominent road-crossings of Dhaka using 2-Approximation Vertex Cover Algorithm</li> <li>- Proposed heuristic algorithm that can be applied on clustered map of a large area</li> </ul>
ACADEMIC PROJECTS	<ul style="list-style-type: none"> <li>• <b>F2PUnifyCR:</b> A Flash-friendly Persistent Burst-Buffer File System implemented on top of UnifyCR</li> <li>• <b>Network Text Editor:</b> A C++ application to facilitating collaborative editing in a LAN</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>CSE Office Management:</b> An integrated system for automating all the official tasks (i.e. Inventory management, Notice board, Teachers' profile, Peer-to-peer communication etc.) of BUET CSE</li> <li>• <b>micro-C Compiler:</b> A simple compiler implementation for C-like programming language (i.e. micro-C)</li> <li>• <b>Automated Water Faucet:</b> A portable hardware device that can be put on any water tape to control the flow of water automatically by detecting human presence using PIR sensor for avoiding wastage</li> <li>• <b>Digital Watch with Timer:</b> A digital watch with timer developed using ATMEGA 8 Microcontroller</li> <li>• <b>LAN Messenger:</b> A software developed in Java for chatting with the contacts that are in a LAN</li> <li>• <b>NACHOS:</b> Not Another Completely Heuristic Operating System implementation developed in C++</li> <li>• <b>Snooker Game:</b> A two player Snooker game developed in C++</li> <li>• <b>Screensaver:</b> A simple screensaver developed in Assembly Language</li> </ul>
VOLUNTARY EXPERIENCE	<ul style="list-style-type: none"> <li>• <b>Student Volunteer at SC'18:</b> Worked as a student volunteer at the SC'18 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Dallas, Texas, USA, November, 2018.</li> <li>• <b>Gaming Application for Differently Abled Children:</b> A car racing game interfaced with cycling machine for encouraging the <a href="#">Active Range Of Motion Exercise (AROME)</a> for the children having weakness in <a href="#">Quadriceps femoris muscle</a> being conducted in <a href="#">Feroza Bari Disabled Children Hospital</a></li> <li>• <b>Software for ReCAP:</b> A software for prioritizing the roads and highways by simulating an algorithm that is developed by <a href="#">Department of Urban and Regional Planning</a>, BUET</li> </ul>
COMMUNITY WORK	<p><b><a href="#">Engineering Students' Association of Bangladesh</a></b>  <i>A common platform for all the engineering students of Bangladesh</i>  <b><i>President</i></b> <span style="float: right;"><b>October, 2011 - November, 2013</b></span>  <a href="#">Pioneered</a> the voluntary association along with a bunch of energetic people and served as the organizational head</p>
SCHOLARSHIPS AND AWARDS	<ul style="list-style-type: none"> <li>• Student Volunteer Program Scholarship for attending the SC'18 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Dallas, Texas, USA, November, 2018.</li> <li>• Champion in the Intra-Department Project Competition for the project <i>CSE Office Management</i></li> <li>• Board Merit Scholarship, HSC Examination</li> <li>• Board Merit Scholarship, SSC Examination</li> </ul>
REFERENCES	Available upon request