

(+1)5125450287
Boston, Massachusetts
gautam.aa@northeastern.edu

Aayushi Gautam

GitHub: aayushi363
LinkedIn: aayushi-gautam-156bb9147

Motivated Ph.D. scholar specializing in High-Performance Computing and Computer Systems. Skilled in independent research, teamwork, and problem-solving. Seeking a challenging role in research and development.

EDUCATION

Ph.D, High Performance Computing, <i>Northeastern University</i>	Present
Bachelor of Engineering (CS), <i>M.B.M. Engineering College</i> , CGPA: 8.79/10	2017-2021

SKILLS

Tools and Languages	C, C++, Python, Git, \LaTeX , Markdown, Matlab
Key Courses Taken	Distributed Systems, Intensive computer systems, Data Structures and Algorithms, Computer Organization and Architecture, Operating System, Compiler Design.
Operating Systems	Linux, Windows, MacOS

EXPERIENCE

Lawrence Berkeley National Laboratory (NERSC division)

June 2024 - Sep 2024

Research Intern

RedHat, June 2023 - Sep 2023

Research Intern

Indian Institute of Technology, Bombay, Sep 2021 — July 2022

Senior Project Technical Assistant

Indian Institute of Technology, Bombay, May 2020 – Jul 2020

Research Intern

PROJECTS

• Transparently Checkpointing CUDA on GPUs

Developed a low-latency checkpointing system for NVIDIA GPUs using CUDA Runtime API and Unified Memory, enabling fault tolerance for HPC workloads on Perlmutter supercomputer (Slurm, Cray MPI).

• DMTCP for RISC-V

Extended Distributed MultiThreaded CheckPointing (DMTCP) to RISC-V architectures using GCC cross-compilation toolchain.

• Performance Testing Elastic Secure Infrastructure project by RedHat

This project aims at developing a tool that can perform stress testing on ESI Project. Developers can test their new feature addition against this tool to make sure that they aren't breaking any existing features.

• Minickpt - a mini checkpointer

It transparently checkpoints and restart the user program with no modifications to user code or to the O/S.

• Peer to Peer Distributed Hash Table (Chord Implementation)

A Distributed Hash Table P2P system based on the Chord protocol and evaluated its functionality, latency rate, hash table distribution, and normal performance.

• Mini Model checker

A Bounded Stateless Explicit-State Model Checker for Finding Deadlock and Assertion Errors in Multi-Threaded Software

• eYcoin - a rewarding bitcoin

A blockchain-based currency, with a GUI for exploring the blockchain and a digital wallet to hold currency and carry out transactions.

ONGOING PROJECTS

DeepDebugging: Developing an innovative debugging methodology that combines DMTCP checkpointing with McMini model checking to efficiently diagnose concurrency bugs in multithreaded applications. Implementing advanced techniques like Dynamic Partial Order Reduction (DPOR) and custom "multithreaded fork" mechanisms to optimize state space exploration and minimize runtime overhead.

ACTIVITIES

Active member of Systems Research Group NEU
Volunteer in PhD hiring committee
Core Team Leader (Technical) Google Developer Student Club

Fall 2022
2020 — 2021