Shreesha G. Bhat

Department of Computer Science
University of Illinois, Urbana-Champaign

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RESEARCH INTERESTS

Distributed Systems, Storage Systems, Operating Systems, Networking

EDUCATION

University of Illinois Urbana-Champaign   2023 - 2028 (expected)
PhD in Computer Science | Advisors: Ram Alagappan, Aishwarya Ganesan | CGPA: 4.0/4.0

Indian Institute of Technology, Madras   2018 - 2023
Dual Degree (BTech + MTech) in Computer Science & Engineering | Advisor: Kartik Nagar | CGPA: 9.66/10.00

PUBLICATIONS

OSDI '25
Low End-to-End Latency atop a Speculative Shared Log with Fix-Ante Ordering
Shreesha G. Bhat, Tony Hong, Xuhao Luo, Jiyu Hu, Aishwarya Ganesan, Ramnatthan Alagappan
The 19th USENIX Symposium on Operating Systems Design and Implementation (OSDI) 2025 (to appear)

SOSP '24
LazyLog: A New Shared Log Abstraction for Low-Latency Applications
Xuhao Luo, Shreesha G. Bhat*, Jiyu Hu*, Ramnatthan Alagappan, Aishwarya Ganesan (*equal contribution)
The 30th Symposium on Operating Systems Principles (SOSP) 2024
Best Paper Award | Invited to Transactions on Computer Systems |

FMCAD '23
Automating Cutoff-based Verification of Distributed Protocols
Shreesha G. Bhat, Kartik Nagar
Formal Methods in Computer-Aided Design (FMCAD) 2023

DISC '21
Brief Announcement: Automating and Mechanising Cutoff Proofs for Parameterized Verification of Distributed Protocols
Shreesha G. Bhat, Kartik Nagar
35th International Symposium on Distributed Computing (DISC) 2021

RESEARCH EXPERIENCE

Improving Latencies in Shared Log Designs | DASSL Lab, UIUC   *Aug '23 – present*
Research Assistant | Guide: Ram Alagappan, Aishwarya Ganesan

· Designing new shared log abstractions that unlock low latencies for client applications.

Improving Cloud Reliability through Systematic Testing | Microsoft Research India   *Aug '22 – Jul '23*
Research Intern | Guide: Akash Lal

· Worked on improving reliability of Azure Cloud Services using concurrency testing tools such as Coyote for C++ programs.
· Built a deterministic concurrency testing framework for a production scale replication library, Azure RSL, which provides an implementation of the Paxos consensus algorithm. Implemented several optimizations to improve state-space coverage.

Parameterized Verification of Distributed Protocols | IIT Madras   *Sep '20 – Jul '23*
Young Research Fellow | Guide: Kartik Nagar

· Investigated cutoff-based techniques for verifying that distributed protocols meet their specification irrespective of the size of the parameter they are instantiated with (such as number of nodes).
· Proposed a framework to mechanize simulation based proofs for cutoffs and applied the approach on a variety of distributed protocols using Z3 as a backend SMT solver.

AWARDS & ACHIEVEMENTS

· Awarded the **Best Paper Award** at SOSP 2024 for the paper titled *LazyLog: A New Shared Log Abstraction for Low-Latency Applications*
· Selected as a undergraduate research fellow as part of the (YRF) program
· Secured prizes for excellent academic performance in the 1st, 2nd, 7th and 8th semesters at IIT Madras.
· Secured All India Rank of **851** and **619** in JEE (Joint Entrance Examination) Advanced & Mains 2018