Shreesha G. Bhat

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Research Interests

Distributed Systems, Data Streaming, Systems for Agentic AI, Machine Learning Systems, Storage Systems, CXL

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

EuroSys '26
A Logically Disaggregated Cache for Replicated Storage Systems
Kiran Hombal, Henry Zhu, Shreesha G. Bhat, Neil Kaushikkar, Ramnatthan Alagappan, Aishwarya Ganesan
The 21st European Conference on Computer Systems (EuroSys) 2026

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

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

Refereed Journal Publications

TOCS '25
LazyLog: A New Shared Log Abstraction and Design for Modern Low-Latency Applications
Xuhao Luo, Shreesha G. Bhat, Jiyu Hu*, Ramnatthan Alagappan, Aishwarya Ganesan* (*equal contribution)
ACM Transactions on Computer Systems (TOCS) August 2025
Invited for Publication

Research Experience

Research @ Distributed and Storage Systems Lab | UIUC *Aug '23 – present*
Research Assistant | Guide: Ram Alagappan, Aishwarya Ganesan

- Designed and implemented two new shared log abstractions, SpecLog and LazyLog, which address the high end-to-end and append latencies respectively in traditional shared log systems.
- Contributed to projects on CXL data sharing and replicated storage systems.
- Currently working on a new shared log abstraction for AI agents interacting with real-time data streams.

Networking and Distributed Systems Lab | Hewlett Packard Labs *May'25 – August'25*
Research Associate Intern | Guide: Puneet Sharma

- Designing infrastructure for agentic AI 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 1^{st}, 2^{nd}, 7^{th} and 8^{th} semesters at IIT Madras.
- Secured All India Rank of **851** and **619** in JEE (Joint Entrance Examination) Advanced & Mains 2018.
- Qualified for KVPY fellowship with an All India Rank of **142**.
- Among the **top 300** in India qualified to write national olympiad examinations for Physics, Chemistry and Astronomy (INPhO, INChO, INAO).

Service

- **Artifact Evaluation Committees:** OSDI'24, ATC'24, FAST'26 (Spring and Fall)
- **Shadow Program Committees:** EuroSys'26
- **Student Volunteer:** SOSP'24

Teaching

- **CS598 Storage Systems, TA, Fall 2025:** Held office hours, graded assignments, and led lecture sessions.

Grants

- **Conference Travel Grants:** OSDI'25, SOSP'24