

Aditya K Kamath

Website: akkamath.github.io

Email: akkamath@cs.washington.edu

Research direction: My projects revolve around **reducing the impact of data movement**, from single-machine microarchitectural level to distributed systems. I'm currently trying to **reduce CPU-GPU data movement in GNN and DLRM models**.

ACADEMIC QUALIFICATIONS

Year	Degree	Institute, City
2021 – Present	Ph.D. in Computer Science	University of Washington, Seattle
2015 – 2019	B.Tech. in Computer Science	National Institute of Technology Karnataka, Surathkal

PROFESSIONAL EXPERIENCE

University of Washington | Graduate Research Assistant

(Sep 2021 – Ongoing)



- Working on **reducing data movement** in contemporary applications [ISCA '24].
- Wrote CUDA kernels to reduce data movement and worked with the gem5 simulator.
- Part of the Computer Systems Lab advised by [Prof. Simon Peter](#).

Microsoft Research | Research Intern

(Jun 2024 – Ongoing)



- Working on **improving LLM inference**.
- Mentored by [Dr. Ashish Panwar](#).

AMD Research | GPU-Centric Collectives Distributed Systems Research Intern

(Jun 2022 – Sep 2022)



- Worked on improving **GPU-initiated collective communication**.
- Improved [ROC SHMEM](#)'s **All-to-All** communication collective using **CUDA/HIP**.
- Worked with the parallel and distributed programming team.

Indian Institute of Science | Research Assistant

(Jun 2019 – Aug 2021)



- Worked on enhancing **race detection** in **GPUs**. [ISCA '20, SOSP '21]
- Applied **NVM** to parallel architectures, i.e., GPU-enhanced persistent KVS and DB. [ASPLOS '22, '23]
- Worked under the guidance of [Prof. Arkaprava Basu](#).

NOTABLE PUBLICATIONS

- [ISCA '24] **(MC)² : Lazy MemCopy at the Memory Controller** [Paper] [Video]
Aditya K Kamath, Simon Peter
51st IEEE/ACM International Symposium on Computer Architecture
- [ISCA '24] **Scalable, Programmable and Dense: The HammerBlade Open-Source RISC-V Manycore**
Dai Cheol Jung, Max Ruttenberg, Paul Gao, Scott Davidson, Daniel Petrisko, Kangli Li, Aditya K Kamath, et. al.
51st IEEE/ACM International Symposium on Computer Architecture
- [ASPLOS '23] **Scoped Buffered Persistency Model for GPUs** [Paper] [Video]
Shweta Pandey*, Aditya K Kamath*, Arkaprava Basu
28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems
- [ASPLOS '22] **GPM: Leveraging Persistent Memory from a GPU** [Paper] [Video]
Shweta Pandey*, Aditya K Kamath*, Arkaprava Basu
27th ACM International Conference on Architectural Support for Programming Languages and Operating Systems
- [SOSP '21] **iGUARD: In-GPU Advanced Race Detection** [Paper] [Video]
Aditya K Kamath and Arkaprava Basu
ACM SIGOPS 28th Symposium on Operating Systems Principles
- [ISCA '20] **ScoRD: A Scoped Race Detector for GPUs** [Paper] [Video]
Aditya K. Kamath*, Alvin A George*, Arkaprava Basu
47th IEEE/ACM International Symposium on Computer Architecture

*Authors contributed equally

TEACHING EXPERIENCE

Undergraduate Teaching Assistant at NITK Surathkal

(2018 - 2019)

- Taught a lesson on the functioning of a cache and modern cache replacement policies.
- Taught a lesson on Persistent Memory and possible future uses.
- Taught a lesson on importance of simulation in systems research, and how to use Intel PIN tool for tracing.
- Designed a project for students to create a working cache simulator.

VOLUNTEER SERVICE

- **Grad Admission Reader** at **University of Washington**: Reviewed applications of graduate school applicants.
- **Pre-Application Mentorship Program (2022, 2023)** at **University of Washington**: Guided students from historically marginalized groups through the graduate application process, revising their SOP and resume.
- **Head Placement Coordinator** at **NITK**: Responsible for directing the entire NITK campus hiring process for 2019. Managed dozens of Placement Coordinators and coordinated with HRs of hundreds of companies.
- **Co-Head of Algorithms Group** of Web Enthusiasts' Club at **NITK**: Organised competitive coding events in college. Gave talks on the basics of algorithms and optimisations.

TECHNICAL SKILLS

- Programming Languages: C, C++, CUDA, Python
- Simulator Experience: gem5, GPGPU-Sim, SST, ns-3, ChampSim
- Relevant Courses: Computer Organization and Architecture, High Performance Computing, Heterogeneous Parallel Computing, Data Structures and Algorithms, Operating Systems