Arjun Kashyap

Contact Information

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Research Interests

My research interests broadly include Virtualization, Cloud Computing, and Storage.

Education

University of California, Merced, CA, USA
Doctorate of Philosophy, Computer Science Jan 2021 - Present

Ohio State University, Columbus, OH, USA
Doctorate of Philosophy, Computer Science (Transferred to UCM) Aug 2019 - Dec 2020

University of Wisconsin-Madison, Madison, WI, USA
Master of Science, Computer Science Sep 2017 - May 2019

National Institute of Technology (NIT) Trichy, Trichy, India
*Bachelor of Technology (*Honors*), Instrumentation & Control Engineering* July 2010 - May 2014

Research Experience

Graduate Researcher

- *Disaggregated storage: Studied and characterized NVMe over Fabrics (NVMe-oF) over different network protocols using Intel SPDK. Worked on adding a new fabric transport to NVMe-oF for datacenters.*
- *Persistent memory: Analyzed Intel Optane DC Persistent Memory Module (DCPMM) to generalize persistent memory characteristics through micro-benchmarks and performed case studies to guide the design of storage systems.*

Professional Experience

Twitter, Inc., San Francisco, CA, USA
Engineering Intern - Infrastructure, Optimization, Performance May 2022 - Aug 2022

Microsoft Corporation, Redmond, WA, USA
Software Engineer Intern - Azure Dedicated (Remote) May 2020 - Jul 2020

Microsoft Research Lab, Cambridge, UK
Research Intern June 2019 - Aug 2019

Microsoft Corporation, Redmond, WA, USA
Software Engineer Intern - Business Applications Group May 2018 - Aug 2018

Oracle India Pvt Ltd, Hyderabad, India
Senior Software Developer (Full stack development) June 2014 - Jul 2017

Software Skills

Programming Languages - C, C#, C++, Java, Javascript, Python, SQL, TypeScript, Bash
Web Technologies - HTML, CSS, NodeJS, Bootstrap, React, JQuery, RequireJS, Knockout
Others - UNIX/Linux, Git, NVMe, SPDK, PMEM, QEMU

Papers and Conferences

1. **Arjun Kashyap** and Xiaoyi Lu "NVMe-oAF: Towards Adaptive NVMe-oF for IO-Intensive Workloads on HPC Cloud", HPDC 2022
2. Xiaoyi Lu and **Arjun Kashyap** "Towards Offloadable and Migratable Microservices on Disaggregated Architectures: Vision, Challenges, and Research Roadmap", WORDS 2021 (Co-located with ASPLOS 2021)
3. Shashank Gugnani, **Arjun Kashyap**, and Xiaoyi Lu "Understanding the Idiosyncrasies of Real Persistent Memory", VLDB 2021
4. **Arjun Kashyap**, Shashank Gugnani, and Xiaoyi Lu "Impact of Commodity Networks on Storage Disaggregation with NVMe-oF", Bench 2020

Achievements And Activities

Awarded student travel grant for SC'20.

Secondary reviewer for HPDC'22, IPDPS'22, SC'21, CCGrid'21'22, Euro-Par'20, IEEE TPDS'20, BPOD'20, HPCS'20, and HiPC'20.

Application development award from US Ignite for SAFER Home project.

Granted *academic proficiency* prizes at NIT Trichy in 2012 and 2013.

Projects

Analysis of Timeline Cache

Twitter, Inc. (Mentor: Yao Yue) May 2022 - Aug 2022

Collected and analyzed production-level command traces of Twitter's timeline storage cache to better understand the timeline's workload characteristics and cache usage. Extended the logging framework to enable diverse information collection on the cache backend.

Azure VMware datacenter monitoring

Microsoft Corp. (Mentor: Amit Chattopadhyay) May 2020 - Jul 2020

Built an end-to-end pipeline to collect, analyze, and monitor VMware vCenter cluster metrics and host system logs for the software-defined data center running on Azure bare-metal nodes.

Augmenting the Visual Studio GateInsight tool

Microsoft Research - Cambridge (Mentor: Katja Kevic & Brendan Murphy) Jun 2019 - Aug 2019

Worked on the GateInsight tool in Microsoft Visual Studio which provides insight to developers about the feature toggles in the Office source code. The tool uses information collected from an analysis framework that finds all the feature toggles.

Study of Request-Routing in Content Delivery Networks

UW-Madison (Course: Adv. Computer Networks, with Prof. Paul Barford) Sep 2018 - Dec 2018

Performed a study of request-routing algorithms and mechanisms in CDNs, subject to varied network conditions. Discovered whether the request routing algorithms of a CDN actually determines the best edge server with respect to client perceived latency. [Code] [Report]

Teaching Experience

Department of Computer Science & Engineering, OSU

- *Grad Teaching Assistant*, CSE 1222: Intro to C++ Aug 2020 - Dec 2020
- *Grad Teaching Assistant*, CSE 2331: Data Structures & Algorithms Aug 2019 - May 2020

Department of Computer Science, UW-Madison

- *Service-learning*, CS 402: Introducing CS to K-12 students Jan 2019 - May 2019
- *Project Assistant*, CS 639: Introduction to Software Security Jan 2019 - May 2019
- *Project Assistant*, CS 537: Introduction to Operating Systems Sep 2018 - Dec 2018
- *Project Assistant*, CS 640: Introduction to Computer Networks Jan 2018 - May 2018