Sreeharsha **Udayashankar**

PhD Candidate · University of Waterloo

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Education

University of Waterloo *Waterloo, Canada*

PhD in Computer Science *Ongoing*

- Advisor: Samer Al-Kiswany
- Thesis: Redesigning Datacenter Systems to Leverage Hardware-Acceleration

University of Waterloo *Waterloo, Canada*

Master of Mathematics (Computer Science) *2021*

- Thesis: In-Network Scheduling for Real-Time Analytics
- Grade: 94.25%

Publications

Conferences

[1] Daniel Erhabor, **Sreeharsha Udayashankar**, Meiyappan Nagappan, and Samer Al-Kiswany. "Measuring the runtime performance of C++ code written by humans using Github Copilot". In: *2025 IEEE/ACM 47th International Conference on Software Engineering (ICSE)*. IEEE Computer Society. 2025, pp. 596–596.

[2] **Sreeharsha Udayashankar**, Abdelrahman Baba, and Samer Al-Kiswany. "VectorCDC: Accelerating Data Deduplication with Vector Instructions". In: *23rd USENIX Conference on File and Storage Technologies (FAST 25)*. 2025, pp. 513–522.

[3] Ahmed Alquraan, **Sreeharsha Udayashankar**, Virendra Marathe, Bernard Wong, and Samer Al-Kiswany. "LoLKV: The Logless, Linearizable, RDMA-based Key-Value Storage System". In: *21st USENIX Symposium on Networked Systems Design and Implementation (NSDI 24)*. 2024, pp. 41–54.

[4] Mu'men Al Jarah, **Sreeharsha Udayashankar**, Abdelrahman Baba, and Samer Al-Kiswany. "The Impact of Low-Entropy on Chunking Techniques for Data Deduplication". In: *2024 IEEE 17th International Conference on Cloud Computing (CLOUD)*. 2024, pp. 134–140. DOI: 10.1109/CLOUD62652.2024.00025.

[5] Seba Khaleel*, **Sreeharsha Udayashankar***, and Samer Al-Kiswany. "Slicify: Fault Injection Testing for Network Partitions". In: *2024 32nd International Conference on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS)*. IEEE. 2024, pp. 1–8.

[6] **Sreeharsha Udayashankar**, Ashraf Abdel-Hadi, Ali Mashtizadeh, and Samer Al-Kiswany. "Draconis: Network-accelerated scheduling for microsecond-scale workloads". In: *Proceedings of the Nineteenth European Conference on Computer Systems*. 2024, pp. 333–348.

[7] **Sreeharsha Udayashankar**, Abdelrahman Baba, and Samer Al-Kiswany. "SeqCDC: Hashless Content-Defined Chunking for Data Deduplication". In: *Proceedings of the 25th International Middleware Conference*. 2024, pp. 292–298.

[8] Alan Liu, Abdelrahman Baba, **Sreeharsha Udayashankar**, and Samer Al-Kiswany. "DedupBench: A Benchmarking Tool for Data Chunking Techniques". In: *2023 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*. IEEE. 2023, pp. 469–474.

[9] Sara Qunaibi, **Sreeharsha Udayashankar**, and Samer Al-Kiswany. "CASPR: Connectivity-aware scheduling for partition resilience". In: *2023 42nd International Symposium on Reliable Distributed Systems (SRDS)*. IEEE. 2023, pp. 70–81.

[10] Ryan Hancock, **Sreeharsha Udayashankar**, Ali José Mashtizadeh, and Samer Al-Kiswany. "Orcbench: A representative serverless benchmark". In: *2022 IEEE 15th International Conference on Cloud Computing (CLOUD)*. IEEE. 2022, pp. 103–108.

[11] **Sreeharsha Udayashankar**, Saumya Chandra, and Donald Cherepacha. "Gaming Modeling and Projections - The Impact of CPU Performance". In: *AMD Asia Technical Conference*. 2017.

Journals

[1] **Sreeharsha Udayashankar**, Abdelrahman Baba, and Samer Al-Kiswany. "Accelerating Data Chunking in Deduplication Systems using Vector Instructions". In: *ACM Transactions on Storage* (Feb. 2026). ISSN: 1553-3077. DOI: 10.1145/3797270. URL: https://doi.org/10.1145/3797270.

[2] **Sreeharsha Udayashankar**, Ali Assem Mahmoud, and Samer Al-Kiswany. "Vectorized Sequence-Based Chunking for Data Deduplication". In: *IEEE Transactions on Parallel and Distributed Systems* (2026), pp. 1–14. DOI: 10.1109/TPDS.2026.3660793.

[3] Basil Alkhatib, **Sreeharsha Udayashankar**, Sara Qunaibi, Ahmed Alquraan, Mohammed Alfatafta, Wael Al-Manasrah, Alex Depoutovitch, and Samer Al-Kiswany. "Partial Network Partitioning". In: *ACM Transactions on Computer Systems* 41.1–4 (Dec. 2023). ISSN: 0734-2071. DOI: 10.1145/3576192. URL: https://doi.org/10.1145/3576192.

Workshops

[1] Huiyi Ning, **Sreeharsha Udayashankar**, Sara Qunaibi, Karl Knopf, and Xi He. "Benchmarking differentially private graph algorithms". In: *Workshop Theory and Practice of Differential Privacy, ICML*. JPC. 2021.

[2] Ibrahim Kettaneh, **Sreeharsha Udayashankar**, Ashraf Abdel-Hadi, Robin Grosman, and Samer Al-Kiswany. "Falcon: Low latency, network-accelerated scheduling". In: *Proceedings of the 3rd P4 Workshop in Europe*. 2020, pp. 7–12.

Patents

[1] **Sreeharsha Udayashankar**, Abdelrahman Baba, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for accelerating hashless content-defined chunking using vector CPU instructions*. US Patent App. 19/224,968. June 2025.

[2] **Sreeharsha Udayashankar**, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for executing vectorized sequence-based chunking*. US Patent App. 19/208,680. May 2025.

[3] Abdelrahman Ba'ba, **Sreeharsha Udayashankar**, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for executing jump-based content-defined data chunking*. US Patent 12,517,869. Sept. 2023.

[4] Seba Tayser Khaleel, **Sreeharsha Udayashankar**, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for testing distributed systems using injected network partitions*. US Patent App. 18/399,839. Dec. 2023.

[5] Samer Al-Kiswany, **Sreeharsha Udayashankar**, Abdelrahman Baba, Serg Bell, and Stanislav Protasov. *Systems and methods of secure deduplication of encrypted content*. US Patent 12,505,233. June 2023.

[6] Sara Qunaibi, **Sreeharsha Udayashankar**, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for connectivty-aware scheduling*. US Patent App. 18/449,011. Aug. 2023.

[7] **Sreeharsha Udayashankar**, Abdelrahman Baba, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for sequence-based data chunking for deduplication*. US Patent App. 18/390,020. Dec. 2023.

[8] **Sreeharsha Udayashankar**, Samer Al-Kiswany, Serg Bell, and Stanislav Protasov. *Systems and methods for performing network accelerated scheduling*. US Patent App. 18/481,483. Oct. 2023.

Work Experience

LinkedIn. *Sunnyvale, USA*

Internship: Systems and Infrastructure Engineering *Jun. 2024 - Sep. 2024*

- Used data deduplication to reduce LinkedIn's Liquid graph database snapshot size by 78-95%, conserving network bandwidth and storage costs

Advanced Micro Devices (AMD). *Bangalore, India*

Design Engineer 2 *Jul. 2018 - Jul. 2019*

- Designed a novel methodology to estimate gaming workload performance on upcoming CPU architectures which was published at the AMD Asia Technical Conference

Advanced Micro Devices (AMD). *Bangalore, India*

Design Engineer *Jul. 2017 - Jul. 2018*

- Designed and developed automated regression testing to monitor changes to workload performance in upcoming CPUs
- Analyzed and improved performance of workloads on Ryzen CPU architecture

Advanced Micro Devices (AMD). *Bangalore, India*

Internship: CPU Design Engineering *Jan. 2017 - Jul. 2017*

- Enhanced performance counter support and developed performance counter verification tests in AMD's in-house CPU architectural simulator

Honors & Awards

Scholarships

2024	**David. R. Cheriton Graduate Scholarship**, University of Waterloo	*Waterloo, Canada*
2024	**Ontario Graduate Scholarship**, Government of Ontario	*Ontario, Canada*
2024	**President's Graduate Scholarship**, University of Waterloo	*Waterloo, Canada*

Professional Awards

| 2017 | **Spotlight Award**, Advanced Micro Devices (AMD) | *Bangalore, India* |