Ramesh Adhikari

Ph.D. Candidate, School of Computer and Cyber Sciences
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Research Interests

Theory and Algorithms; Distributed/Parallel Algorithms; Blockchain; Fault-Tolerant Distributed Systems; Fog–Cloud Computing, Distributed Transaction Scheduling; Stability Analysis; Cybersecurity.

Education

Ph.D. in Computer and Cyber Sciences (Expected 07/2026)
Augusta University, Augusta, GA, USA
Advisor: **Dr. Konstantin (Costas) Busch**
Supported by NSF Grant #2131538

M.E. in Computer Engineering (GPA: 3.75/4.0)
Pokhara University, Kathmandu, Nepal, 2018 – 2021

B.E. in Computer Engineering (78.15%)
Tribhuvan University, Kathmandu, Nepal, 2013 – 2017

Professional Appointments & Employment

Graduate Research Assistant, Augusta University, USA, 08/2022 – Present

Instructor, Zenlab, Kathmandu, Nepal, 01/2021 – 12/2021

Software Engineer, Sanima Bank, Kathmandu, Nepal 05/2019 – 06/2022

Software Engineer, SmartMobe Solutions Pvt. Ltd, Kathmandu, Nepal 02/2018 – 04/2019

Publications

Conference Proceedings (Peer Reviewed)

[1] **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding," Proceedings of the 39th International Symposium on Distributed Computing **(DISC 2025)**, pp. 2:1 – 2:23, Dagstuhl, Germany. https://doi.org/10.4230/LIPIcs.DISC.2025.2

[2] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Stable Blockchain Sharding under Adversarial Transaction Generation," Proceedings of the 36th ACM Symposium on Parallelism in Algorithms and Architectures **(SPAA 2024)**, pp. 451-461, Nantes, France. https://doi.org/10.1145/3626183.3659970

[3] **Ramesh Adhikari**, Costas Busch, and Pavan Poudel, "A Poly-Log Approximation for Transaction Scheduling in Fog–Cloud and Beyond," Proceedings of the 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems **(SSS 2025)**, pp 21– 39, Kathmandu, Nepal, **[Best Student Paper Award]**

[4] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Near-Optimal Stable Transaction Processing in Blockchain Sharding," Proceedings of the 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems **(SSS 2025)**, pp 4–20, Kathmandu, Nepal, https://doi.org/10.1007/978-3-032-11127-2_3

[5] **Ramesh Adhikari** and Costas Busch, "Lockless Blockchain Sharding with Multiversion Control," Proceedings of the 30th International Colloquium on Structural Information and Communication Complexity **(SIROCCO 2023)**, pp. 112 – 131, Alcala De Henares, Spain, June 2023. https://doi.org/10.1007/978-3-031-32733-9_6

Journal Articles (Published, Peer Reviewed)

[1] **Ramesh Adhikari**, Costas Busch, Dariusz R. Kowalski, and Abdullah Al-Mamun, "Transaction Processing in Blockchain Sharding: Current Trends and Future Research Directions," ACM Distributed Ledger Technologies: Research and Practice (***ACM: DLT***), 2025.

[2] **Ramesh Adhikari** and Suresh Pokharel. "Performance Evaluation of Convolutional Neural Networks Using Synthetic Medical Data Augmentation Generated by GANs," International Journal of Image and Graphics, 2023.

Journal Articles (Under Review)

[1] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Stable Blockchain Sharding under Adversarial Transaction Generation," Distributed Computing (**DC Springer**), *First Round Revision*.

[2] **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding," ACM Transactions on Parallel Computing (**ACM TOPC**).

[3] **Ramesh Adhikari**, Costas Busch, and Pavan Poudel, "A Poly-Log Approximation for Transaction Scheduling in Fog–Cloud and Beyond," Theoretical Computer Science (**TCS**), Elsevier**,** *Invited for Special Issues.*

[4] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Near-Optimal Stable Transaction Processing in Blockchain Sharding," Theoretical Computer Science (**TCS**), Elsevier**.** *Invited for Special Issues***.**

Preprints

[1] **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "Fast Transaction Scheduling in Blockchain Sharding," arXiv preprint, 2024, https://arxiv.org/abs/2405.15015

Grants and Funding Experience

- Contributed to the preparation of **two NSF research grant proposals (CSR, AF)** in distributed systems and blockchain sharding.
- PhD Supported by NSF Grant #2131538.
- Multiple NSF and university travel awards (SPAA, DISC, CANS).

Teaching Experience

Instructor (Part-Time), Zenlab, Kathmandu, Nepal (2021)
Courses taught (Undergraduate level): - Programming Languages (Python, C, C++) - Database Systems (MySQL, SQL Server) - Web Technologies (HTML, CSS, JavaScript)

Teaching Interests: Algorithms; Distributed Systems; Blockchain; Databases; Parallel Computing; Cybersecurity; Cloud Computing.

Awards and Honors

- **Best Student Paper Award**, International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025).
- Full Tuition Waiver and Graduate Research Assistantship, Augusta University (2022–present).
- Full Scholarship for M.E. in Computer Engineering, Pokhara University (2018).
- **NSF Student Travel Awards** (Multiple) totaling **$2,090** (SPAA 2024, DISC 2022, CANS 2023).
- **University Travel Awards** (Multiple) totaling **$2,000**, Augusta University (2023–2024).
- Star Performance Excellence Award, Sanima Bank Ltd. (2021).

Talks and Presentations

Invited Talks

- Stable Blockchain Sharding under Adversarial Transaction Generation, EECS Department, Syracuse University, USA, Nov 2024.
- Stable Blockchain Sharding under Adversarial Transaction Generation, School of Computer and Cyber Sciences, Augusta University, USA, Nov 2024.

Conference Presentations

- Near-Optimal Stability for Distributed Transaction Processing in Blockchain Sharding, SSS 2025, Kathmandu, Nepal, Oct 2025.
- Stable Blockchain Sharding under Adversarial Transaction Generation, SPAA 2024, Nantes, France, Jun 2024

- Lockless Blockchain Sharding with Multiversion Control, SIROCCO 2023, Alcala de Henares, Spain, Jun 2023.

Poster Presentations

- Fast Transaction Scheduling in Blockchain Sharding, Graduate Research Day, Augusta University, Mar 2025.
- Efficient Transaction Processing in Blockchain Sharding, The Cyber-Physical Systems Innovation Symposium 2025, Georgia Cyber Center, USA, Sept 2025.
- Lockless Blockchain Sharding with Multiversion Control, Emerging Data Science Workshop, Augusta University, Mar 2023.

Student Supervision

- **Dhiraj Sharma**, M.S. Thesis (Co-supervisor), Pokhara University, 2023
- **Sushant Dahal**, B.Sc. in Computer Science (Undergraduate Thesis, Co-supervisor), Thapar Institute of Engineering and Technology, Patiala, Punjab, India, 2025
- **Dipesh Bhattarai**, B.Sc. in Computer Science (Undergraduate Thesis, Co-supervisor), Thapar Institute of Engineering and Technology, Patiala, Punjab, India, 2025

Academic Service

- Registration Chair, International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS'25)
- Web Chair, NSF Innovation Engine Symposium on Cyber-Security and Cyber-Physical Systems (2025)

Reviewer (Journals): IEEE TGCN; IEEE TMC; Journal of Network and Computer Applications; Blockchain: Research and Applications

Reviewer (Conferences): DISC'25, PODC'24, SIROCCO'24, IEEE Blockchain'23 & Blockchain'24

Industry Experience

Software Engineer, Sanima Bank, Nepal (2019–2022)
Led development of secure, scalable banking applications; integrated APIs with core banking systems.

Software Engineer, SmartMobe Solutions, Nepal (2018–2019)
Developed APIs for mobile and web platforms; integrated payment gateways.

Technical Skills

Programming: C, C++, Python, Go, Java
Distributed & Parallel: MPI, OpenMP, CUDA
Systems & Tools: Linux, Git, AWS, LaTeX