Ramesh Adhikari

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

Distributed Algorithms; Transaction Scheduling; Blockchain Sharding; Fault-Tolerant Distributed Systems; Fog–Cloud Computing, Distributed Transaction Scheduling; Stability Analysis; Cybersecurity.

Education

Ph.D. in Computer and Cyber Sciences (Expected July 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

Conference Publications

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***), Dagstuhl, Germany.

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***), Nantes, France.

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***), Kathmandu, Nepal **[Best Student Paper Award]**.

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***), Kathmandu, Nepal.

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)**.

Journal Articles (Published)

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.

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)

Ramesh Adhikari, Costas Busch, and Dariusz R. Kowalski. *Stable Blockchain Sharding under Adversarial Transaction Generation.* **Distributed Computing (Springer)**, under review.

Ramesh Adhikari, Costas Busch, and Miroslav Popovic. *On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding.* **ACM Transactions on Parallel Computing**, under review.

Ramesh Adhikari, Costas Busch, and Pavan Poudel. *A Poly-Log Approximation for Transaction Scheduling in Fog–Cloud and Beyond.* Proceedings of the **Theoretical Computer Science (Springer),** *Invited for Special Issues.*

Ramesh Adhikari, Costas Busch, and Dariusz R. Kowalski. *Near-Optimal Stable Transaction Processing in Blockchain Sharding.* Proceedings of the **Theoretical Computer Science (Springer).** *Invited for Special Issues***.**

Preprints

Ramesh Adhikari, Costas Busch, and Miroslav Popovic. *Fast Transaction Scheduling in Blockchain Sharding.* arXiv preprint, 2024.

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** totaling **$2,090** (SPAA 2024, DISC 2022, CANS 2023).
- **University Travel Awards** 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 2025)
- 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, PODC, SIROCCO, IEEE Blockchain

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