Ramesh Adhikari

Curriculum Vitae

School of Computer and Cyber Sciences
Augusta University, Augusta, GA 30912, USA
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RESEARCH INTERESTS

Distributed Algorithms, Blockchain Technology, Blockchain Security, Cybersecurity, Database Management, Fault Tolerance, Smart Contracts, Fog-Cloud Computing, Internet of Things, Transaction Scheduling, Stability Analysis, and Machine Learning.

EDUCATION

Ph.D. in Computer and Cyber Sciences Aug 2022 – (Expected) July 2026
Augusta University, Augusta, GA 30912, USA
Advisor: Dr. Konstantin (Costas) Busch | Supported by NSF grant: 2131538
- Conducting research in distributed algorithms, blockchain sharding, cybersecurity, fog–cloud computing
- Assisted in preparing two NSF research grant proposals

M.E. in Computer Engineering (GPA 3.75) Aug 2018 – Jan 2021
Pokhara University, Kathmandu, Nepal

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

PROFESSIONAL EXPERIENCES

Graduate Research Assistant August 2022 – Present
- Augusta University, Augusta, GA, USA.

Instructor (Programming languages and Database) Jan 2021 – Dec 2021
- Zenlab, Kathmandu, Nepal

Software Engineer
- Sanima Bank, Kathmandu, Nepal (3 years) May 2019 – Jun 2022
- SmartMobe Solutions Pvt. Ltd, Kathmandu, Nepal (1 year) Feb 2018 – April 2019

Part-Time Web Developer
- Mantra Ideas Pvt. Ltd, Lalitpur, Nepal (2 years) July 2015 – Dec 2017

PUBLICATIONS

[1] **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding". In 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 Pavan Poudel, "A Poly-Log Approximation for Transaction Scheduling in Fog-Cloud and Beyond". In Proceedings of the 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025), Kathmandu, Nepal. [**Best Student Paper Award**].

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

[4] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski. "Near-Optimal Stable Transaction Processing in Blockchain Sharding". In Proceedings of the 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025), Kathmandu, Nepal.

[5] **Ramesh Adhikari,** Costas Busch, and Dariusz R. Kowalski. "Stable Blockchain Sharding under Adversarial Transaction Generation", In 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

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

[7] **Ramesh Adhikari** and Suresh Pokharel, "Performance Evaluation of Convolutional Neural Network Using Synthetic Medical Data Augmentation Generated by GAN", International Journal of Image and Graphics 23, no. 01 (2023). https://doi.org/10.1142/S021946782350002X

Under Review and Preprints:

[8] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Stable Blockchain Sharding under Adversarial Transaction Generation", Springer Journal: Distributed Computing, 2025. [**Under Review**]

[9] **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic. On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding. ACM Journal: ACM Transactions on Parallel Computing (TOPC), 2025. [**Under Review**]

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

Invited for Special Issues (Extended Versions of SSS 2025 Papers, Under Process):

[11] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski. Near-Optimal Stable Transaction Processing in Blockchain Sharding. Springer Journal: Theoretical Computer Science (TCS), 2025. [**To Be Reviewed**]

[12] **Ramesh Adhikari**, Costas Busch, and Pavan Poudel. A Poly-Log Approximation for Transaction Scheduling in Fog-Cloud and Beyond. Springer Journal: Theoretical Computer Science (TCS), 2025. [**To Be Reviewed**]

STUDENT CO-SUPERVISION AND MENTORSHIP

Dhiraj Sharma, Master's Student, thesis co-supervised — Spring, 2023
Pokhara University, Kathmandu, Nepal.

Sagar Khatri, Web Developer, mentored — Jan 2021 – Jun 2022
Sanima Bank, Kathmandu, Nepal.

AWARDS AND HONORS

- **Best Student Paper Award,** 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025), Oct 2025.

- **Full Tuition Waiver and Graduate Assistantship,** Augusta University, 2022- Present.

- **NSF Student Travel Awards,** $1000 from SPAA 2024 conference, June 2024.

- **Student Travel Award,** $1000 from the Graduate School, Augusta University, April 2024.

- **NSF Student Travel Awards,** $650 for CANS conference, Nov 2023.

- **Student Travel Award,** $1000 from the Graduate School, Augusta University, Mar 2023.

- **NSF Student Travel Award,** $100, Data Science Workshop, Augusta University, Feb 2023.

- **NSF Student Travel Award,** $340 for DISC conference, Oct 2022.

- **Star Performance Excellence Award,** at Sanima Bank Ltd, 2021.

- **Granted a Full Scholarship** for a Master of Science in Computer Engineering from Pokhara University, 2018.

TEACHING EXPERIENCE

Part-Time Instructor, Zenlab, Kathmandu, Nepal: Taught programming languages and databases for undergraduate students, which included the following courses:

- Programming Languages: Python, C, C++

- Database: MySQL, SQL Server

- Web Technology: HTML, CSS, JavaScript

PRESENTATIONS AND INVITED TALKS

- Near-Optimal Stability for Distributed Transaction Processing in Blockchain Sharding, 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025), Kathmandu, Nepal (Oct 2025) [Conference paper presentation].

- Stable Blockchain Sharding under Adversarial Transaction Generation, 36th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2024) in Nantes, France (Jun 2024) [Conference paper presentation].

- Lockless Blockchain Sharding with Multiversion Control, 30th International Colloquium on Structural Information and Communication Complexity (SIROCCO), Spain (Jun 2023) [Conference paper presentation].

- Fast Transaction Scheduling in Blockchain Sharding, 40th Annual Graduate Research Day at Augusta University, USA (Mar 2025) [Poster presentation].

- Lockless Blockchain Sharding with Multiversion Control, 3rd annual workshop on Emerging Data Science and Cyber Data at Augusta University, USA (Mar 2023) [Poster presentation].

- Stable Blockchain Sharding under Adversarial Transaction Generation, Electrical Engineering and Computer Science (EECS) Department at Syracuse University, USA (Nov 2024) [Invited talk].

- Stable Blockchain Sharding under Adversarial Transaction Generation, School of Computer and Cyber Sciences Department at Augusta University, USA (Nov 2024). [Invited talk].

ACADEMIC SERVICES

Registration Chair: 27th International Symposium on Stabilization, Safety, & Security of Distributed Systems, 2025.

Web Chair: NSF Innovation Engine Symposium on Cyber-Security and Cyber-Physical Systems, 2025

Reviewer Journals

- Invited Reviewer, IEEE Transactions on Green Communications and Networking (2024).
- External Reviewer, Journal of Network and Computer Applications (2024).
- External Reviewer, Blockchain: Research and Applications (2024).
- External Reviewer, IEEE Transactions on Mobile Computing, (2024).
- External Reviewer, IEEE Transactions on Network and Service Management (2022).

Reviewer Conferences

- Invited Reviewer, DISC 2025, PODC 2024, SIROCCO 2024, SIGMIS CPR 2024.
- External Reviewer, IEEE Blockchain 2023, IEEE Blockchain 2024.

INDUSTRY EXPERIENCES

Software Engineer | Sanima Bank | Kathmandu, Nepal May 2019 – Jun 2022

- Led digital transformation in the Technical Innovation Department.
- Developed and automated web applications to streamline banking operations and improve user experience.
- Integrated APIs and Core Banking System to enhance the real-time data exchange.
- Improved application security and compliance with IS recommendations.
- **Technologies Used**: Python, Batch Scripts, Java, PHP (Laravel), SQL Server, MySQL, JavaScript, Apache, Git.

Software Engineer | SmartMobe Solutions Pvt. Ltd | Kathmandu, Nepal Feb 2018 – Apr 2019

- Collaborated with a 30-member team to develop cutting-edge APIs for mobile and web apps.
- Developed the API to integrate the Android and IOS applications.
- Integrated the third-party payment gateway in the web application and API.
- Focused on scalable, secure application architecture and researched new tools for improved efficiency.
- **Technologies Used**: AWS, MySQL, PHP (Laravel), Python, AngularJS, HTML, CSS, Stripe Payment Gateway.

TECHNICAL SKILLS

- **Operating Systems:** Linux, Windows, Mac OS
- **Programming Languages:** C, C++, Python, GO, PHP, JAVA
- **Parallel Computing Frameworks:** MPI, OpenMP, CUDA
- **Data Mining Tools:** Pandas, Numpy, Matplotlib, Tableau
- **Web Technologies:** HTML, CSS, JavaScript, Ajax/jQuery, WordPress, WAMP/XAMPP
- **Databases:** MySQL, SQLite, SQL Server, MongoDB
- **Version Control:** Git, SVN
- **IDE and Services:** IntelliJ IDEA, Visual Studio, Jupyter Notebook, PyCharm, Packet Tracer, AWS, LATEX