

Ramesh Adhikari

Ph.D. Candidate

School of Computer and Cyber Sciences
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RESEARCH INTERESTS

Distributed Algorithms, Blockchain Technology, Blockchain Security, Cybersecurity, Database, Fault-Tolerance, Smart Contracts, Fog-Cloud Computing, Internet of Things, Transaction Scheduling.

EDUCATION

Ph.D. in Computer and Cyber Sciences (GPA 3.95) Aug 2022 – (Expected) July 2026

Augusta University, Augusta, GA 30912, USA

Dissertation title: “*Efficient Transaction Processing Techniques for Distributed Blockchain Sharding*”

Advisor: Dr. Konstantin (Costas) Busch

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.

Part-Time Instructor Jan 2021 – Dec 2021

Zenlab, Kathmandu, Nepal

Software Engineer May 2019 – Jun 2022

Sanima Bank, Kathmandu, Nepal

Software Engineer Feb 2018 – April 2019

SmartMobe Solutions Pvt. Ltd, Kathmandu, Nepal

Part-Time Web Developer July 2015 – Dec 2017

Mantra Ideas Pvt. Ltd, Lalitpur, Nepal

PUBLICATIONS

Published:

- [1] **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), 2024.
- [2] **Ramesh Adhikari** and Costas Busch, “*Lockless Blockchain Sharding with Multiversion Control*”, International Colloquium on Structural Information and Communication Complexity (SIROCCO 2023), 2023
- [3] **Ramesh Adhikari** and Suresh Pokharel, “*Performance Evaluation of CNN Using GAN-Based Data Augmentation*”, In: International Journal of Image and Graphics, 2023.

Preprints:

- [4] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, “[*Fast Transaction Scheduling in Blockchain Sharding*](#)”, [arxiv].

Under Review:

- [5] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, “*Stable Blockchain Sharding under Adversarial Transaction Generation*”, [Submitted to Journal]
- [6] **Ramesh Adhikari**, Costas Busch, Dariusz R. Kowalski, Abdullah Al-Mamun, “*Transaction Processing in Blockchain Sharding: Current Trends and Future Research Directions*”, [Submitted to Journal]
- [7] **Ramesh Adhikari**, Costas Busch, and Pavan Poudel, “*A Poly-Log Approximation for Transaction Scheduling in Fog-Cloud and Beyond*”, [Submitted to conference]
- [8] **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, “*Near-Optimal Stable Transaction Processing in Blockchain Sharding*”, [Submitted to conference]

CO-SUPERVISION AND MENTORSHIP

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

Spring, 2023

Sagar Khatri, Web Developer, mentored
Sanima Bank, Kathmandu, Nepal.

Jan 2021 – Jun 2022

AWARDS AND HONORS

- **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
- Database: Mysql, SQL Server
- Web Technology: HTML, CSS, Javascript

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.

PRESENTATIONS AND INVITED TALKS

- “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.

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, ACM Symposium on Principles of Distributed Computing (PODC 2024).
- External Reviewer, 7th IEEE International Conference on Blockchain (Blockchain 2024).
- Invited Reviewer, ACM SIGMIS Computers and People Research 2024 (SIGMIS CPR 2024).
- Invited Reviewer, International Colloquium On Structural Information and Communication Complexity (2024).
- External Reviewer, 6th IEEE International Conference on Blockchain (Blockchain 2023).

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

REFERENCES

Dr. Konstantin (Costas) Busch, Professor & Chair, Department of Computer Science, School of Computer & Cyber Sciences, Augusta University. Email: kbusch@augusta.edu.

Dr. Dariusz Kowalski, Professor, School of Computer & Cyber Sciences, Augusta University. Email: dkowalski@augusta.edu.

Dr. Pavan Poudel, Assistant Professor, Department of Computer Science, University of Houston-Clear Lake. Email: poudel@uhcl.edu.