

# RAMESH ADHIKARI

**Ph.D. Candidate**, School of Computer and Cyber Sciences

Augusta University, Augusta, GA, USA

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## 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

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## RESEARCH INTERESTS

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

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## 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

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## 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.
- 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.

- 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.
- 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.

### Journal Articles (Published, Peer Reviewed)

- 6 **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.
- 7 **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 / Revision)

- 8 **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Stable Blockchain Sharding under Adversarial Transaction Generation," *Distributed Computing (DC Springer)*, *First Round Revision*.
- 9 **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "On the Efficiency of Dynamic Transaction Scheduling in Blockchain Sharding," *ACM Transactions on Parallel Computing (ACM TOPC)*.
- 10 **Ramesh Adhikari**, Costas Busch, and Pavan Poudel, "A Poly-Log Approximation for Transaction Scheduling in Fog–Cloud and Beyond," *Theoretical Computer Science (TCS)*, *Invited for Special Issues*.
- 11 **Ramesh Adhikari**, Costas Busch, and Dariusz R. Kowalski, "Near-Optimal Stable Transaction Processing in Blockchain Sharding," *Theoretical Computer Science (TCS)*, *Invited for Special Issues*.

### Preprints

- 12 **Ramesh Adhikari**, Costas Busch, and Miroslav Popovic, "Fast Transaction Scheduling in Blockchain Sharding," arXiv preprint, 2024, <https://arxiv.org/abs/2405.15015>

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### GRANTS AND FUNDING

- Contributed to the preparation of **two NSF research grant proposals (CSR, AF)**
- PhD Supported by NSF Grant #2131538.
- Multiple NSF and university travel awards (SPAA, DISC, CANS).
- **Planned submissions:** NSF CAREER, NSF SaTC / CSR.

## TEACHING EXPERIENCE

**Guest Lecturer (Scheduled)** – CSCI 8250 Quantum Computing (Graduate Level)

Augusta University, Augusta, GA, USA, Spring 2026

Topics: quantum programming, OpenQASM, Qiskit, IBM Quantum hands-on circuit execution.

**Instructor** (Undergraduate level)

Zenlab, Kathmandu, Nepal (2021)

Courses: Programming (Python, C, C++), Databases, Web Technologies.

**Teaching Interests:** Data Structures and Algorithms; Distributed Systems; Blockchain; Databases; Parallel Computing; Cybersecurity; Cloud Computing; Advanced Topics in Computer Security.

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## AWARDS & HONORS

- **Best Student Paper Award, \$585**, SSS'25 (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).
  - First Runner-Up in a software competition at Kantipur Engineering, Tribhuvan University (2015)
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## TALKS & 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.
- Stable Blockchain Sharding under Adversarial Transaction Generation, **SPAA 2024**, Nantes, France.
- Lockless Blockchain Sharding with Multiversion Control, **SIROCCO 2023**, Alcala de Henares, Spain.

### Poster Presentations

- Fast Transaction Scheduling in Blockchain Sharding, 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.
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## **STUDENT SUPERVISION**

- Sushant Dahal, B.Sc. Thesis (Co-Supervisor), Thapar Institute of Engineering and Technology, 2025
  - Dipesh Bhattarai, B.Sc.Thesis (Co-Supervisor), Thapar Institute of Engineering and Technology, 2025
  - Dhiraj Sharma, M.S. Thesis (Co-Supervisor), Pokhara University, 2023
  - Mentored undergraduate student teams for the EVOLVE 2.0 software competition, Kathmandu International College, 2017
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## **ACADEMIC SERVICE**

**Registration Chair**, 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

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

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## **INDUSTRY EXPERIENCE (SELECTED)**

**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

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## **TECHNICAL SKILLS**

Programming: C, C++, Python, Go, Java

Distributed & Parallel: MPI, OpenMP, CUDA

Systems & Tools: Linux, Git, AWS, LaTeX