Computing and Information Science
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Nibesh Shrestha

Research Interests

Byzantine fault tolerant consensus protocols, Blockchains, Distributed Key Generation, Random Beacons, Order fair consensus

Education

2017–2023 **Ph.D. Computer Science**, *Rochester Institute of Technology*, Rochester, NY, USA.
Advisors: Kartik Nayak (Duke University), Pengcheng Shi (RIT), GPA: 3.89

2009–2013 **B.E. Electronics and Communication Engineering**, *Tribhuvan University*, Lalitpur, Nepal.
GPA: 3.81

Publications

default ordering – alphabetical

Otherwise, by contribution order. (***** denotes equal contribution)

2024 **Nibesh Shrestha**, Aniket Kate, Kartik Nayak. Sailfish: Towards Improving the Latency of DAG-based BFT *In Submission*

2023 Isaac Doidge, Raghavendra Ramesh, **Nibesh Shrestha**, Joshua Tobkin. Moonshot: Optimizing Block Period and Commit Latency in Chain-Based Rotating Leader BFT *Dependable Systems and Networks (DSN)*,June 24-27, 2024, Brisbane, Australia

2023 Ittai Abraham, Kartik Nayak, **Nibesh Shrestha**. Communication and Round Efficient Parallel Broadcast Protocols *In Submission*

2022 **Nibesh Shrestha**, Adithya Bhat, Aniket Kate, Kartik Nayak. Synchronous Distributed Key Generation without Broadcasts *IACR Communications In Cryptology*, Volume 1, Issue 2, 2024

2021 Adithya Bhat*, **Nibesh Shrestha***, Aniket Kate, Kartik Nayak. OptRand - Optimistically Responsive Distributed Random Beacons *Network and Distributed System Security Symposium (NDSS)*, February 27– March 3, 2023, San Diego, California

2021 Ittai Abraham, Kartik Nayak, **Nibesh Shrestha**. Optimal Good-case Latency for Rotating Leader Synchronous BFT *Principles of Distributed Systems (OPODIS)*, December 13-15, 2021, Strasbourg, France, **Best Paper Award**

2021 Justin Kim, Vandan Mehta, Kartik Nayak, **Nibesh Shrestha**. Brief Announcement: Making synchronous BFT protocols secure in the presence of mobile sluggish faults *ACM PODC* July 26-30, 2021, Virtual Event

2020 Adithya Bhat*, **Nibesh Shrestha***, Aniket Kate, Kartik Nayak. RandPiper - Reconfiguration-Friendly Random Beacons with Quadratic Communication *ACM CCS* November 14-19, 2021, Virtual Event

2020 **Nibesh Shrestha**, Ittai Abraham, Ling Ren, Kartik Nayak. On the Optimality of Optimistic Responsiveness. *ACM CCS* November 9–13, 2020, Virtual Event, USA

2019 **Nibesh Shrestha**, Mohan Kumar, Sisi Duan. Revisiting hBFT: Speculative Byzantine Fault Tolerance with Minimum Cost. *arXiv preprint arXiv:1902.08505* , 2019.

2019 **Nibesh Shrestha**, Mohan Kumar. Revisiting EZBFT: A Decentralized Byzantine Fault Tolerant Protocol with Speculation. *arXiv preprint arXiv:1909.03990* , 2019.

Professional Employment

Fall 2022 **Research Intern**, *ChainLink Labs*, New York, NY.
Mentor: Dahlia Malkhi

Summer 2021 **Associate in Research**, *Duke University*, Durham, NC.

Summer 2020 **Associate in Research**, *Duke University*, Durham, NC.

2019-present **Graduate Teaching and Research Assistant**, *Rochester Institute of Technology*, Rochester, NY.
Graduate Teaching Assistant for Analysis of Algorithms.

2017-2019 **Graduate Research Assistant**, *Rochester Institute of Technology*, Rochester, NY.

2015-2017 **Freelance Software Developer**, *Upwork Global Inc.*, Cambridge, MA.

2016-2017 **Senior Software Engineer**, *FFL Design Inc.*, Meridian, ID.

2017 **Senior Software Engineer (part-time)**, *DjangoForce LLC*, Boise, ID.

2014-2015 **Senior Software Engineer**, *n.Locate Pvt. Ltd.*, Lalitpur, Nepal.

Skills

Programming Languages.
C++, GoLang, Python, GoLang, Java, Matlab, VHDL, C, C#, Javascript, PHP

Software Artifacts

C++ Code for OptRand, *https://github.com/nibeshrestha/optrand/*.

C++ Code for Rotating Leader BFT, *https://github.com/nibeshrestha/simplesync/*.

C++ Code for OptSync, *https://github.com/nibeshrestha/optsync/*.

Talks and Presentations

Oct 2022 **Synchronous Distributed Key Generation without Broadcasts**.
CESC 2022

Dec 2021 **Optimal Good-case Latency for Rotating-Leader Synchronous BFT**.
OPODIS 2021

Nov 2021 **RandPiper: Reconfiguration Friendly Random Beacons with Quadratic Communication**.
ACM CCS 2021

Nov 2020 **On the Optimality of Optimistic Responsiveness**.
ACM CCS 2020

Academic Service

External Reviewer for ACM CCS (2023, 2022, 2021), IEEE S&P (2022), FC (2022, 2021), PerCom (2020), JPDC (2020).

Awards and Honors

2023 **NDSS Student travel grant**.

2022 **CESC Student travel grant**.

2021 **OPODIS Best Paper Award**.

2017-2019 **RIT PhD Merit Scholarship**.

2009-2013 **The College Fellowship Scholarship**.
Tuition waiver for 4 years of undergraduate studies for BE in Electronics and Communication Engineering

References

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Department of Computer Science
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✉ kartik [at] cs.duke.edu

Aniket Kate
Associate Professor
Department of Computer Science
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Senior Researcher
Intel Labs
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