Sourav Das

PhD Candidate
Computer Science, University of Illinois Urbana-Champaign

CONTACT INFORMATION

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RESEARCH INTERESTS

Applied Cryptography, Security, Blockchain and Distributed Algorithms

EDUCATION

University of Illinois at Urbana Champaign

Ph.D. candidate, Computer Science, August 2019 - ongoing

- Advisor: Ling Ren

Indian Institute of Technology Delhi, India

B.Tech., Computer Science and Engineering, 2014 - 2018

- Dissertation: "Scaling Smart Contracts in Permissionless Blockchain"
- Advisor: Vinay Ribeiro

HONORS AND AWARDS

- Mavis Future Faculty Fellowship, UIUC, 2022-23.
- Young Researcher to the Heidelberg Laureate Forum, 2022.
- 2022 Chainlink Labs PhD fellowship.
- 2022 Meta (Facebook) PhD fellowship finalist.
- Best paper runner's up at ACM CCS 2021.
- Suresh Chandra Memorial Award for Best IIT Delhi CSE Undergraduate Thesis, 2018.

PROFESSIONAL EXPERIENCE

Aptos Labs, Palo Alto, CA, USA. Summer Research Intern.	June 2023 - Present
Novi Research, Menlo Park, CA, USA. Summer Research Intern.	May 2022 - Aug 2022
Visa Research, Palo Alto, CA, USA. Summer Research Intern.	May 2021 - Aug 2021
IIT Bombay, India. Research Assistant.	Feb 2019 - July 2019
National University of Singapore, Singapore. Research Intern.	June 2018 - Jan 2019
Qualcomm Bangalore, India. Interim Software Developer.	May 2017 - July 2017
Loughborough University, UK. Visiting Research Student,	May 2016 - July 2016

TEACHING EXPERIENCE

Teaching Assistant, **Fault-Tolerant Distributed Algorithms, UIUC**	Spring 2022
Guest Lectures on Threshold Cryptography, **Distributed Algorithms, UIUC**	Spring 2023

SELECTED PUBLICATIONS

* Denotes alphabetical ordering.

Sourav Das, Zhuolun Xiang, and Ling Ren. *Powers of Tau in Asynchrony*, **NDSS**, 2024

Sourav Das, Zhuolun Xiang, Alin Tomescu, Alexander Spiegelman, Benny Pinkas, and Ling Ren. *A New Paradigm for Verifiable Secret Sharing*, eprint, 2023

*Sourav Das, Rex Fernando, Ilan Komargodski, Elaine Shi, Pratik Soni, *Distributed-Prover Interactive Proofs.* **TCC** 2023.

Atsuki Momose, Sourav Das, and Ling Ren. *On the Security of KZG Commitment for VSS*, **ACM CCS**, 2023.

Sourav Das, Philippe Camacho, Zhuolun Xiang, Javier Nieto, Benedikt Bunz, and Ling Ren. *Threshold Signatures from Inner Product Argument: Succinct, Weighted, and Multi-threshold*, **ACM CCS**, 2023, **SBC** 2023.

Sourav Das, Zhuolun Xiang, Lefteris Kokoris-Kogias, and Ling Ren. *Practical Asynchronous High-threshold Distributed Key Generation and Distributed Polynomial Sampling*, **USENIX Security** 2023

Christoph U. Günther, Sourav Das, and Lefteris Kokoris-Kogias. *Practical Asynchronous Proactive Secret Sharing and Key-refresh*, eprint, 2022

*Saikrishna Badrinarayanan, Sourav Das, Gayathri Garimella, Srinivasan Raghuraman, Peter Rindal. *Secret-Shared Joins with Multiplicity from Aggregation Trees*, **ACM CCS** 2022

*Nicolas Alhaddad, Sourav Das, Sisi Duan, Ling Ren, Mayank Varia, Zhuolun Xiang, Haibin Zhang. *Brief Announcement: Asynchronous Verifiable Information Dispersal with Near-Optimal Communication*, Brief Announcement at **ACM PODC** 2022.

*Nicolas Alhaddad, Sourav Das, Sisi Duan, Ling Ren, Mayank Varia, Zhuolun Xiang, Haibin Zhang. *Balanced Byzantine Reliable Broadcast with Near-Optimal Communication and Improved Computation*, **ACM PODC** 2022.

Sourav Das, Thomas Yurek, Zhuolun Xiang, Andrew Miller, Lefteris Kokoris-Kogias, and Ling Ren. *Practical Asynchronous Distributed Key Generation*, **IEEE S&P** 2022. **SBC** 2022.

Sourav Das, Vinith Krishnan, Irene Miriam Isaac, and Ling Ren. *SPURT: Scalable Distributed Randomness Beacon with Transparent Setup*. **IEEE S&P** 2022.

Sourav Das, Nitin Awathare, Ling Ren, Vinay Joseph Ribeiro, and Umesh Bellur. *Tuxedo: Maximizing Smart Contract computation in PoW Blockchains*. ACM **SIGMETRICS** 2022.

Sourav Das, Zhuolun Xiang, and Ling Ren. *Asynchronous Data Dissemination and its Applications*. **ACM CCS** 2021
Best paper runners up at ACM CCS, 2021!

Nitin Awathare, Sourav Das, Vinay Joseph Ribeiro, and Umesh Bellur. *Renoir: Accelerating Block Validation in Blockchains using State Caching*. In proceedings of 12th ACM/SPEC International Conference on Performance Engineering (**ICPE**), April 2021.

Sourav Das, Vinay J. Ribeiro, Abhijeet Anand. YODA: *Enabling computationally intensive contracts on blockchains with Byzantine and Selfish nodes*. **NDSS 2019**.
Suresh Chandra Memorial award for best IIT Delhi CSE Undergraduate thesis, 2018!

Selected Pre-prints

Sourav Das, Vinith Krishnan, and Ling Ren. *Efficient Cross-Shard Transaction Execution in Sharded Blockchains*. arXiv preprint arXiv:2007.14521, 2020.

Professional Services

Program Committee
- 2024: Financial Cryptography

External-reviewer
- 2023: IEEE S&P, Financial Cryptography, Eurocrypt, SBC
- 2022: Financial Cryptography, STOC, CCS, PODC, ICDCS
- 2021: Financial Cryptography, ASIACRYPT, ICDCS

- 2020: CCS, STOC, Stanford Blockchain Conference
- 2019: ASIACRYPT

Invited Talks

Asynchronous Data Dissemination and its Applications
- ACM CCS 2021
- Stanford Blockchain Seminar
- Novi Research
- Visa Research
- IC3 Summer Event
- Purdue Crypto Seminar

Practical Asynchronous Distributed Key Generation
- IEEE S&P 2022
- Science of Blockchain Conference (SBC 2022)
- Aptos Labs

Practical Asynchronous High-threshold DKG and Distributed Polynomial Sampling
- USENIX Security 2023
- Consensusday 2023
- CMU Cylab crypto seminar
- Berkeley security seminar
- Boston University security seminar
- Visa Research
- Silence labortories

Threshold signature from Inner Product Argument: Succinct, Weighted, and Multi-threshold
- ACM CCS 2023
- Stanford Security Seminar

SPURT: Scalable Distributed Randomness Beacon with Transparent Setup
- IEEE S&P 2022
- Celo technical talk

Balanced Byzantine RBC with Near-Optimal Communication and Improved Computation
- ACM PODC 2022

Enabling computationally intensive contracts on blockchains with Byzantine and Selfish nodes
- NDSS 2019