

Sambhav Satija

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🏠 <https://sambhav.info/>

📺 [darkryder](#)

📺 [iamsambhav](#)

Research interests: Building secure and scalable systems

Education

University of Wisconsin-Madison (UW-Madison)

Madison, WI, USA

Ph.D – Computer Science & Engineering

Jan. 2021 – Present

Advisors: Prof. [Andrea Arpaci-Dusseau](#), Prof. [Remzi Arpaci-Dusseau](#)

Indraprastha Institute of Information Technology (IIIT-Delhi)

New Delhi, India

Bachelor of Technology – Computer Science & Engineering

Aug. 2013 – Dec. 2017

Research Experience

Microsoft Research

Redmond, WA

Research Intern

May 2022 – Aug. 2022

Advisor: [Badrish Chandramouli](#)

- Developed a framework to saturate IOPS for systems that use [FASTER](#). (Details under NDA)

Microsoft Research

Bengaluru, India

Research Fellow

July 2018 – Dec. 2020

Advisors: [Satya Lokam](#) & [Muthian Sivathanu](#)

- [Blockene](#) is a novel permissioned blockchain protocol that requires minimal resources, enabling it to run on mobiles.
 - Contributed to the protocol design – focusing on security & efficiency for low resource nodes.
 - Contributed to the implementation of the C++ server, Android client and testing infrastructure.

Microsoft Research

Bengaluru, India

Research Intern

Jan. 2017 – July 2017

Advisor: [Jacki O’Neill](#)

- Developed technological interventions to improve loan adherence in low income communities.
 - Built a system for ~300 auto-rickshaw drivers (Bengaluru, India) which allowed them to intuitively understand their loan repayment progress.
 - Now a startup – [ThreeWheelsUnited Fintech](#).

Industry Experience

Tower Research Capital

Gurgaon, India

Core Engineering Software Developer

Jan. 2018 – July 2018

- Maintained internal build tools, including a proprietary version control system.

Google

Bengaluru, India

Software Engineering Intern

May 2016 – Jul. 2016

- Used internal tools to build an API and Chrome extension for reseller partners.

Publications

[4] **BlindTLS: Circumventing TLS-based HTTPS censorship**

Sambhav Satija, Rahul Chatterjee. In the Workshop on Free and Open Communications on the Internet (**FOCI 2021 @ SIGCOMM 2021**)

[3] **Blockene: A High-throughput Blockchain Over Mobile Devices**

Sambhav Satija, Apurv Mehra, Sudheesh Singanamalla, Karan Grover, Muthian Sivathanu, Nishanth Chandran, Divya Gupta, Satya Lokam. In the Proceedings of the 14th Symposium on Operating Systems Design and Implementation (**OSDI 2020**)

- [2] **Prayana: Intermediated Financial Management in Resource-Constrained Settings**
Apurv Mehra, Srihari Muralidhar, Sambhav Satija, Anupama Dhareshwar, Jacki O'Neill. In the Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (**CHI 2018**)
- [1] **Prayana: A Journey Towards Financial Inclusion**
Apurv Mehra, Sambhav Satija, Jacki O'Neill. In the Ninth International Conference on Information and Communication Technologies and Development (**ICTD 2017**)

Selected Projects

Recovery in distributed storage systems: Black box analysis to understand the recovery mechanisms and policies of existing distributed storage systems. (Ongoing research)

Highly available K/V store using PM: Studied the performance overheads of existing K/V stores running on persistent memory (NVM). (2021 course project)

Disaggregated persistent memory aware datastructures: Explored the performance v/s functionality trade-offs and skewed read/write performance of a disaggregated-PM architecture by implementing a B+-tree and external sort over InfiniBand RDMA. (2021 course project)

Real time raytracer: Implemented BVH and thread-safe workers in CUDA, achieving a 760x speedup. Concurrent workers were key to handle per-pixel disproportionate workload and infinite ray bounces. (2016)

IIITD's Community Work Portal – Developed and deployed a portal which has been handling a mandatory course's workflow for 200+ students/year. (2014 – 2021)

Teaching/Volunteer

2022	Artifact Evaluation Committee – Eurosys 2022	
2022	TA – CS537 (Operating Systems), Spring & Fall	<i>UW-Madison</i>
2021	TA – CS354 (Machine Organization & Programming), Spring & Fall	<i>UW-Madison</i>
2020	Shadow PC – EuroSys 2021	
2018	Speaker – Deployment strategies in the ever-changing cloud space	<i>Women TechMakers</i>
2016	TA – Data Structures and Algorithms	<i>IIIT-Delhi</i>
2015	TA – Operating Systems	<i>IIIT-Delhi</i>

Honors

2021	Department RA – Awarded CS Department summer RA	<i>UW-Madison</i>
2017	Grand Prize Winner – AngelHack - Bangalore	<i>Bangalore</i>
2016	Finalist – 3rd in Indian leg of CSAW-CTF Finals organised by NYU	<i>CSAW, NYU</i>
2015/6	Finalist – 2015 & 2016 – Microsoft Build The Shield security CTF	<i>Microsoft, India</i>

Relevant coursework/Skills

Courses:	Big-data systems, distributed systems, persistent memory (NVME)
Languages:	C, C++, Python, Java
Frameworks:	Django & Angular2 (web frameworks etc.), Android, RDMA over infiniband
Tools:	GNU toolchain, deployment tools (ansible etc.), web tools (Nginx, memcached etc.)