Sambhav Satija

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Research interests: Building usecase-informed scalable systems

Education

University of Wisconsin-Madison (UW-Madison) Madison, WI, USA
Ph.D – Computer Science & Engineering started Jan. 2021
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

Research Assistant @ UW-Madison started Jan 2023
Advisors: Prof. Andrea Arpaci-Dusseau, Prof. Remzi Arpaci-Dusseau

- **Serverless compute-storage:** Building systems that exploit the knowledge of how serverless compute interacts with storage services.
- **Understanding cloud architectures:** Studied how developers build their systems on the cloud, shedding light on common cloud practices and industry needs.
- **Towards web2.5:** Created a taxonomy of different architectural decisions seen in *dApps*.

Microsoft Research Redmond, WA
Research Intern May 2022 – Aug. 2022
Advisor: Badrish Chandramouli
Worked on maximizing disk utilization for Garnet, a drop-in replacement for Redis.

Microsoft Research India Bengaluru, India
Research Fellow July 2018 – Dec. 2020
Advisors: Satya Lokam & Muthian Sivathanu
Worked on Blockene: a permissioned blockchain protocol requiring minimal resources

- 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 India 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 understand their loan repayment progress intuitively. Part of a startup – ThreeWheelsUnited Fintech

Publications

[6] **Cloudscape: A Study of Storage Services in Modern Cloud Architectures**
Sambhav Satija*, Chenhao Ye, Ranjitha Kosgi, Aditya Jain, Romit Kankaria, Yiwei Chen, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau, Kiran Srinivasan.* To Appear In the Proceedings of the 23rd USENIX Conference on File and Storage Technologies **(FAST 2025)**

[5] **TrustRate: A Decentralized Platform for Hijack-Resistant Anonymous Reviews**
Rohit Dwivedula, Sriram Sridhar, ***Sambhav Satija,*** *Muthian Sivathanu, Nishanth Chandran, Divya Gupta, Satya Lokam.* **(arXiv preprint 2024)**

[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)**

Industry Experience

Kloudfuse (Observability) — Cupertino, CA
Software Engineering Intern — Jun. 2024 – Aug. 2024
Implemented log archival and hydration pipelines, moving logs between storage tiers (Pinot ↔ S3).

Tower Research Capital (High Frequency Trading) — 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.

Selected Projects

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

IIITD's Community Work Portal – Developed and deployed a portal which has been handling a mandatory course's workflow for 400+ students/year. (built 2014 – maintained 2017). Github.

Teaching/Volunteer

2024	**Artifact Evaluation Committee** – SOSP 2024, Eurosys 2025	
2023	**TA** – CS639 (Blockchains), Spring	*UW-Madison*
2022	**TA** – CS537 (Operating Systems), Spring & Fall	*UW-Madison*
2021	**TA** – CS354 (Machine Organization & Programming), Spring & Fall	*UW-Madison*
2020	**Shadow PC** – EuroSys 2021	

Honors

2024	**Travel Grant** – USENIX OSDI 2024	
2021	**Department RA** – Awarded CS Department summer RA	*UW-Madison*
2017	**Grand Prize Winner** – AngelHack - Bangalore	*Bangalore*
2016	**Finalist** – 3rd in Indian leg of CSAW-CTF Finals organised by NYU	*CSAW, NYU*
2015/6	**Finalist – 2015 & 2016** – Microsoft Build The Shield security CTF	*Microsoft, India*
2015	**Winner - IBM** – AngelHack, New Delhi	*New Delhi*

Relevant coursework/Skills

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