

Aditi Partap

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EDUCATION

Stanford University

Ph.D. in Computer Science
Security & Cryptography

September 2021 - Present

Advisor: Dan Boneh

University of Illinois at Urbana-Champaign

M.S. in Computer Science
Computer Networks & Systems

August 2019 - May 2021

Advisor: Radhika Mittal & Brighten Godfrey

Indian Institute of Technology, Delhi

B.Tech. in Computer Science
CGPA: 9.675/10, Department Rank 1

July 2014 - May 2018

INTERESTS & ONGOING RESEARCH

I'm broadly interested in applied cryptography, and am currently working on projects related to Single Secret Leader Election and SNARKs.

RESEARCH EXPERIENCE

Accountable Threshold Signatures with Proactive Refresh

Stanford University

Summer'22 - Fall'22

Dan Boneh, Lior Rotem

- Introduced several definitions for proactive refresh for accountable threshold signatures (ATS), with different levels of security.
- Constructed a hybrid ATS with proactive refresh that achieves strong security, and more practical schemes from BLS and Schnorr based ATS schemes, that achieve weaker security.

Memory Tagging: ARM MTE Pitfalls and Improvements

Stanford University

Winter'22

Dan Boneh

- Surveyed how modern systems use ARM MTE for memory safety, and identified potential attacks in their designs.
- Developed & experimented with a memory efficient design for ARM MTE, which strengthens its security with minor performance overheads.

DeepG2P: Fusing Multi-Modal Data to Improve Crop Production

Microsoft Research

Summer'21

Ranveer Chandra & Anirudh Badam

- Designed and developed a multi-modal neural network using convolution and attention mechanisms to predict agricultural yield based on seeds' DNA and environmental conditions of the farm.
- Trained and evaluated the model on Genome to Fields Maize dataset, and achieved 13-45% better prediction on unseen fields than existing methods.

On-Device CPU Scheduling for Sense-React Systems

University of Illinois at Urbana Champaign

Fall'19 - Spring'21

Brighten Godfrey & Radhika Mittal

- Developed a scheduling framework to manage compute resource allocation for sense - react systems, which dynamically adapts to variations in application requirements as well as available resources.
- Integrated the framework with ROS and ILLIXR (open source platforms for robotics and AR/VR) and improved performance for face tracking, robot navigation and VR applications.

- Built an AI system that can answer multi faceted tourism questions from a huge set of answers.
- Applied a pipeline of NLP tools to extract correct entities from free text answers collected with online travel forum posts to curate a large 48k sized dataset.
- Designed & implemented a neural network employing LSTMs and attention mechanism & implemented a few OpenQA based research papers for baseline comparison.

PUBLICATIONS

1. Dan Boneh, *Aditi Partap*, Lior Rotem. "Accountable Threshold Signatures with Proactive Refresh" In submission at EuroCrypt'23 ([eprint](#))
2. *Aditi Partap*, Dan Boneh. "Memory Tagging: A Memory Efficient Design" In submission at EuroS&P'23 ([arXiv](#))
3. Swati Sharma, *Aditi Partap*, Maria Angels de Luis Balaguer, Sara Malvar, Ranveer Chandra. "DeepG2P: Fusing Multi-Modal Data to Improve Crop Production" In submission at AISTATS'23 ([arXiv](#))
4. Sachin Ashok, *Aditi Partap*, Ammar Tahir. "Fast and efficient lookups via data-driven FIB designs" In Proceedings of the ACM SIGCOMM Workshop on Future of Internet Routing & Addressing (FIRA), 2022
5. *Aditi Partap*, Samuel Grayson, Muhammad Huzaifa, Sarita V. Adve, Brighten Godfrey, Saurabh Gupta, Kris Hauser, Radhika Mittal. "On-Device CPU Scheduling for Sense-React Systems" In International Conference on Intelligent Robots and Systems (IROS), 2022
6. Danish Contractor, Krunal Shah, *Aditi Partap*, Parag Singla, Mausam. "Answering POI-recommendation Questions using Tourism Reviews" In Proceedings of the 30th ACM International Conference on Information & Knowledge Management (CIKM), 2021

AWARDS

- Stanford School of Engineering Graduate Fellowship 2021
- NSDI 2020 Diversity grant. 2020
- Institute Silver Medal for securing Department Rank 1 in Computer Science Dept. at IIT Delhi. 2018
- All India Rank 7 in IIT Joint Entrance Examination (JEE Advanced) & secured 1st rank among girls. 2014
- Among 16 students across all India to be awarded Aditya Birla Group Scholarship. 2014
- All India Rank 208 among 1.4 million candidates appearing in JEE Mains organized in India by CBSE. 2014
- Among Top 300 in Indian National Physics Olympiad. 2014
- Among Top 30 in Indian National Mathematical Olympiad (INMO). 2013
- Kishore Vaigyanik Protsahan Yojana Fellowship (KVPY) by Govt. of India. 2012-13
- National Talent Search Examination (NTSE) scholarship (Top 1000 at National level). 2010

INDUSTRY EXPERIENCE

- Designed and implemented an email notification system which involved adding infrastructure support, efficiently querying the back-end database to identify users with expiring subscriptions, and extensive system testing.
- Developed various front-end features to improve customer engagement for the Power BI service.

Deploying Tabular Data Models on Azure

Microsoft Corporation, Redmond

May 2017 - July 2017

- Designed and developed a web application that allows users to deploy and visualize tabular models over their data on Azure Analysis Services.
- Used AngularJS framework to incorporate data binding and developed APIs in C# to connect to and fetch metadata from the user's database.
- Leveraged CRM solutions to integrate the app with Dynamics 365.

ACTIVITIES & SERVICE

- Designed a puzzle for ZK-Hacks III, based on the Cheon attack, that can break the security of zk-SNARKs. Used arkworks to develop the [puzzle](#).
- Among Top 100 students selected from universities across Europe, Asia & the Americas to attend the Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS), 2018.
- Co-chaired the Programmable networks session at HotNets'20.
- Undergraduate Teaching Assistant for Programming Languages course during Spring, 2018 and Data Structures & Algorithms course during Fall, 2017.

SKILLS

Rust, Python, Java, C, C++, Git, L^AT_EX