Aditi Partap

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EDUCATION

Stanford University   **September 2021 - Present**
Ph.D. in Computer Science   *Advisor: Dan Boneh*
Security & Cryptography

University of Illinois at Urbana-Champaign   **August 2019 - May 2021**
M.S. in Computer Science   *Advisor: Radhika Mittal & Brighten Godfrey*
Computer Networks & Systems

Indian Institute of Technology, Delhi   **July 2014 - May 2018**
B.Tech. in Computer Science
CGPA: 9.675/10, Department Rank 1

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   **Summer'22 - Fall'22**
Stanford University   *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.
- In submission at EuroCrypt'23 (eprint)

Memory Tagging: ARM MTE Pitfalls and Improvements   **Winter'22**
Stanford Univerisity   *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.
- In submission at EuroS&P'23 (arXiv)

DeepG2P: Fusing Multi-Modal Data to Improve Crop Production   **Summer'21**
Microsoft Research   *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.
- In submission at AISTATS'23 (arXiv)

On-Device CPU Scheduling for Sense-React Systems   **Fall'19 - Spring'21**
University of Illinois at Urbana Champaign   *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.
- Accepted at IROS'22 (arXiv)

Answering POI-recommendation Questions using Tourism Reviews   **Fall'17 - Spring'18**
Indian Institute of Technology, Delhi   *Mausam & Parag Singla*

- 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.
- Accepted at CIKM'21 (arXiv).

Activities & Service

- Designed a puzzle for ZK-Hacks III, based on the Cheon attack that can be used to break SNARK systems. Implemented a new BLS12 curve and the Cheon algorithm in arkworks.
- 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.

Awards

Stanford School of Engineering Graduate Fellowship	*2021*
NSDI 2020 Diversity grant.	*2020*
Among Top 100 selected for Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS).	*2018*
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

Email Notification System for Power BI Service   **December 2018 - August 2019**
Microsoft Corporation, Vancouver, BC

- 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   **May 2017 - July 2017**

Microsoft Corporation, Redmond

- 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.

Skills

Rust, Python, Java, C, C++, Git, LaTeX