

# Ananya Appan

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## RESEARCH INTERESTS

I am interested in cryptography, with a specific focus on secure multi-party computation (MPC). My research has revolved around designing synchronous protocols for MPC with asynchronous fallback guarantees, and designing protocols for MPC against general adversaries.

## EDUCATION

*Integrated Master of Technology* July 2022  
[International Institute of Information Technology \(IIIT\) Bangalore](#), India

- CGPA : 3.84 / 4
- Master's Thesis Supervisor : Dr. [Ashish Choudhury](#)

*Intermediate (12th Class)* May 2017  
Chetana Pre University College, Bangalore, India

- Karnataka Pre University Board
- Percentage : 98%

*Secondary (10th Class)* March 2015  
Delhi Public School Bangalore North

- CBSE (Central Board of Secondary Education)
- CGPA : 10 / 10

## JOURNAL PUBLICATIONS

- Ananya Appan, Anirudh Chandramouli, Ashish Choudhury, Perfectly-Secure Synchronous MPC with Asynchronous Fallback Guarantees, *IEEE Transactions on Information Theory*, 2023
- Ananya Appan, Anirudh Chandramouli, Ashish Choudhury, Revisiting the Efficiency of Asynchronous MPC with Optimal Resilience Against General Adversaries, *Journal of Cryptology*, 2023

## CONFERENCE PUBLICATIONS

- Ananya Appan, Anirudh Chandramouli, Ashish Choudhury, [Perfectly Secure Synchronous MPC with Asynchronous Fallback Guarantees Against General Adversaries](#) *International Symposium on Distributed Computing (DISC)* 2023
- Ananya Appan, Anirudh Chandramouli, Ashish Choudhury, [Perfectly-Secure Synchronous MPC with Asynchronous Fallback Guarantees](#), *ACM Symposium on Principles of Distributed Computing (PODC)* 2022
- Ananya Appan, Anirudh Chandramouli, Ashish Choudhury, [Revisiting the Efficiency of Asynchronous Multi Party Computation Against General Adversaries](#), *INDOCRYPT 2022: 23rd International Conference on Cryptology*

## PREPRINTS

- Ananya Appan, Ashish Choudhury, [Network Agnostic MPC with Statistical Security](#)

## TALKS

[Bangalore Crypto Day, Spring 2023](#) March 2023

- Gave a talk based on the paper “Revisiting the Efficiency of Asynchronous Multi Party Computation Against General Adversaries” at the Indian Institute of Science.

[Theory and Practice of Multi Party Computation \(TPMPC\) 2022](#) June 2022

- Gave a remote talk based on the paper “Perfectly-Secure Synchronous MPC with Asynchronous Fallback Guarantees” ([recording](#)).

## TEACHING ASSISTANT-SHIPS

*International Institute of Information Technology, Bangalore*

Conducted (online) tutorial sessions, set questions for assignments and exams, and evaluated these for the following courses.

- Foundations of Cryptography January 2022 - May 2022.  
Instructors : Dr. [Ashish Choudhury](#), Dr. [Srinivas Vivek](#)
- Discrete Mathematics August 2021 - December 2021.  
Instructor : Dr. [Ashish Choudhury](#)
- Data Structures and Algorithms March 2021 - July 2021.  
Instructor : Dr. [V N Muralidhara](#)
- Programming II (C++ and Java) August 2020 - December 2020.  
Instructors : Dr. [Jaya Sreevalsan Nair](#), Dr. [T K Srikanth](#)

[National Programme on Technology Enhanced Learning \(NPTEL\)](#)

Instructor : Dr. [Ashish Choudhury](#)

Set questions for assignments and exams, and helped manage the discussion forum for the following MOOC (Massive Open Online Courses) courses.

- [Secure Computation: Part II](#) July 2022 - November 2022.
- [Discrete Mathematics](#) January 2022 - April 2022.
- [Foundations of Cryptography](#) January 2022 - April 2022.
- [Secure Computation: Part I](#) July 2021 - November 2021.

## WORK EXPERIENCE

*Associate Developer* July 2022 - Present

[SAP Labs, India](#)

- Build cloud applications on SAP’s Business Technology Platform ([BTP](#)) using SAP Cloud Application Programming ([CAP](#)) model.

*Summer Intern* May 2021 - July 2021

[SAP Labs, India](#)

- Created dashboards using SAP Analytics Cloud ([SAC](#)) and worked on a proof of concept for querying encrypted databases.

*Research Intern* May 2020 - July 2020

[Indian Institute of Science, Bangalore](#)

- Supervisor : Dr. [Jayant R. Haritsa](#)
- Compared [UNMASQUE](#), a hidden SQL query extractor, to other implementations for reverse query engineering, and built a synthetic SQL query generator for testing it.

*Developer* June 2018 - December 2018

[LexHeal, Bangalore](#)

- Helped build the front end of an EHR Mobile Application for a start up using React Native.

## ACHIEVEMENTS

- Received the Late Sri. N. Rama Rao Gold Medal for [Student of the Year](#) for the graduating batch of 2022.
- Included in the [Dean's Merit List](#) of IIIT Bangalore from 2017 to 2022.
- Selected for being awarded the [IAS](#) (Indian Academy of Sciences) fellowship under the Computer Science Engineering category in 2020.
- Finalist in [LinkedIn Wintathon 2020](#).
- Part of the team which received second place in the [Codess](#) Hackathon conducted by Microsoft in 2019.
- Qualified for [ACM ICPC](#) Regionals (Amritapuri and Kharagpur) in 2018.
- Among top 1000 students in the country selected for being awarded the [KVPY](#) Scholarship in 2016.
- Ranked 24th in the state in the NTSE (National Talent Search Exam) in 2014.

## PROJECTS

### *Autism Detection In Children*

Project elective done in collaboration with St. Johns Centre for Advanced Research and Excellence in Autism and Developmental Disorders ([CAREADD](#)).

- Supervisors : Dr. [Dinesh Babu Jayagopi](#), Dr. [Shyam Sundar Rajagopalan](#)
- Fine tuned a 3D convolutional neural network pretrained on the Kinetics dataset to detect stereotypical behaviour in autistic children. Tried to use self supervised learning to augment the data used to train the network.

### *Web App to create DocBooks online*

- Supervisor : Dr. [Chandrashekar Ramanathan](#)
- Implemented a web application to perform CRUD operations on a book written in the DocBook XML format. Focused on how content rendered in DocBook XML can be ported to other data formats like PDF and HTML.

### *Saliency Deblurring*

- Supervisor : Dr. [Dinesh Babu Jayagopi](#)
- Trained an encoder-decoder network to deblur images based on saliency maps. Used a multi-head decoder architecture to deblur foreground and background separately.