# 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, *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, Anirudh Chandramouli, Ashish Choudhury, Perfectly Secure Synchronous MPC with Asynchronous Fallback Guarantees Against General Adversaries

## 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.