

## EDUCATION

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- **Ashoka University** Sonipat, India  
*Postgraduate Diploma in Advanced Studies and Research in Computer Science* Aug. 2020 – May 2021
- **Ashoka University** Sonipat, India  
*Bachelor of Science in Computer Science* Aug. 2017 – May 2020

## RELEVANT COURSE WORK

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Computer Security and Privacy, Blockchain and Cryptocurrencies, Introduction to Machine Learning, Advanced Machine Learning, Privacy-Preserving Computation, Linear Algebra, The New Geography of the Information Age.

## EXPERIENCE

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- **Koç University** Istanbul, Turkey  
*Research Intern* July 2020 - August 2020
  - Developed a network-based blockchain simulator for Bitcoin and Ethereum networks that can be used for beta-testing, optimisations, and attacks mitigation.
  - Deployed a state-of-the-art attack mitigation protocol, FORTIS on the simulator to produce desired theoretical results.
  - Extended work in progress with the Cryptography, Security, and Privacy Research Group, Koç University, under Prof. Alptekin Küpçü.
- **AshokaX, Ashoka University** Sonipat, India  
*Intern* May 2020 - August 2020
  - Launched the pilot version of AshokaX, Ashoka University's EduTech initiative and onboarded 11 classes of online learners as a part of the program team.
  - Built a learning management system and aided the instructors and online learners with technical troubles.
- **Trivedi Centre for Political Data** Sonipat, India  
*Software Development Intern* Dec 2019 – Jan 2020
  - Added new functionalities to the centre's tool 'Surf', an entity mapping software for Indian politicians in Java and Javascript.
  - Received hands-on experience working with several policy researchers and political data scientists.
- **Centre for Teacher Accreditation** Bangalore, India  
*Content Intern* July 2019 – Sept 2019
  - Created content for benchmarked assessments for teacher training in India.
- **Technology Business Incubator, SASTRA University** Thanjavur, India  
*Intern, VR Lab* July 2019 – Aug 2020
  - Worked on interior designing and game development using virtual reality in Unity and C#.
  - Assisted researchers at the VR and IoT labs in organizing summer workshops for undergraduate engineering students.

## PROJECTS

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- **Capstone Project:** Studied and implemented privacy-preserving linear regression in two frameworks, namely, SecureML (2017) in the 2-server setting and BLAZE (2020) in the 3-server setting and proposed optimisations in the multiplication protocols and truncation. Advised by *Prof. Mahavir Jhawar*. 2020-21.
- **Privacy-Preserving Federated Learning:** A decentralised aggregation method for training of federated learning models. Advised by *Prof. Debayan Gupta*. Ongoing.
- **BlockSim-Net:** A comprehensive simulator in Python for simulating attacks and attack-mitigation protocols in Bitcoin and Ethereum. Advised by *Prof. Alptekin Küpçü*. 2020-21. *Submitted to the Turkish Journal of Electrical Engineering and Computer Sciences*.
- **S++: A Secure Computation Framework:** A secure three-party framework for privacy-preserving neural network training with exponentiation-based activation functions. Advised by *Prof. Debayan Gupta*. Extended work in progress.
- **Hyperfunds:** A distributed full stack application on Hyperledger Fabric that enables faculty at Ashoka University to reliably spend their research funds with approval from the right administrators using Python and Javascript. Advised by *Prof. Mahavir Jhawar*. Spring 2020.
- **Neural Machine Translation:** An LSTM Encoder-Decoder based model for machine translation from English to Hindi with Attention mechanism in Python. Spring 2020.
- **Yao's Garbled Circuits:** Implementation of RSA-based oblivious transfer and Yao's garbled circuits in C. Summer 2019.

## TEACHING

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- **Teaching Assistant**, Computer Security and Privacy (Spring 2021), Prof. Debayan Gupta, Ashoka University. Class Size: 40; Student Feedback: 4.60/5.
- **Teaching Assistant**, Computer Organization and Systems (Monsoon 2020), Prof. Manu Awasthi, Ashoka University. Student Class Size: 80; Student Feedback: 4.44/5.
- **Instructor**, Basics of C and C++ (Summer 2020), SastaICP, a volunteer-organized summer course for first year CS majors by third year CS majors. Ashoka University.
- **Helpdesk Tutor**, Probability and Statistics (2019), Computer Science Helpdesk, Ashoka University.
- **Academic Counselor**, Young Scholars Programme (2019), a two-week long summer program for high-school students, Ashoka University.

## LEADERSHIP

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- **President**, Women in Computing Society (2020-21), Ashoka University. [Link to Annual Report 2020-21](#).
- **Team Representative and Vocalist**, Alankār (2018-21), Vistaar – The Music Society, Ashoka University.
- **Campus Ambassador** for *Ashoka University* (2018), Ashoka University.
- **School Vice Captain** (2015), Atomic Energy Central School, Kakrapar, Surat, India.

## AWARDS AND HONORS

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- **Magna Cum Laude Honors**, Postgraduate Diploma in Advanced Studies and Research (2021), Ashoka University.
- **Cum Laude Honors**, Bachelor of Science (2020), Ashoka University.
- **Dean's List**, 5 semesters, Ashoka University.
- **Honorable Mention**, ACM Zonal-Level Intercollegiate Programming Competition (2019).
- **Runners Up**, All India Inter-AECS Debate Competition (2015), Mumbai, India.

## PUBLICATIONS

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### *Conference Papers*

- **Ramachandran, P.**, Agarwal, S., Shah, A., Mondal, A., Gupta, D. (2021). 'S++: A Fast and Deployable Secure-Computation Framework for Privacy-Preserving Neural Network Training'. *Privacy-Preserving Artificial Intelligence Workshop, Association for the Advancement of Artificial Intelligence 2021*. 8-9 February 2021.
- Agrawal, N., **Prashanthi, R.**<sup>1</sup>, Biçer, O., & Küpçü, A. (2020). 'BlockSim-Net: A Network Based Blockchain Simulator'. *BAŞARIM 2020: National High Performance Computing Conference*. Ankara Yıldırım Beyazıt University, Ankara, Turkey, 8-9 October 2020.

### *Theses/Dissertations*

- **Ramachandran, P.**, Jhanwar M. P. (2021). 'Privacy-Preserving Linear Regression: Efficient Multiplication Protocols in 2-party and 3-party Settings'. Bachelor's Thesis. Ashoka University, Sonipat, India.

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<sup>1</sup>First and second authors contributed equally.