

## Education

- 2020 - 2026 **University of Virginia, USA,**  
(Expected) *Computer Science, Doctor of Philosophy (PhD).*
- 2016 - 2020 **Heritage Institute of Technology, Kolkata,**  
*Information Technology, Bachelor of Technology, CGPA – 9.27/10.*  
**Gold Medalist**
- 2015 **St. Xavier's Institution, Panihati,**  
*Class XII, Indian School Certificate (ISC), Aggregate – 83.0%.*
- 2013 **St. Xavier's Institution, Panihati,**  
*Class X, Indian Certificate of Secondary Education (ICSE), Aggregate – 82.4%.*

## Other Scores

- Jul 2019 **GRE,**  
324/340, (Verbal: 158, Quant: 166, AWA: 5/6).
- Aug 2019 **TOEFL,**  
111/120, (Reading: 27, Listening: 29, Speaking: 27, Writing: 28).

## Relevant Coursework

Data Structure, Design & Analysis of Algorithms, Graph Theory & Algebraic Structures, Calculus, Operations Research, Image Processing, Pattern Recognition, Data Mining, Computer Network, Numerical and Statistical Methods, Computer Architecture, Computer Organization, Operating Systems

## Work Experiences

- Apr – Dec 2019 **Indian Statistical Institute, Kolkata, Undergraduate Visiting Research Intern.**  
○ Project: **Air Writing**
- Jan 2019 **Skymap Global Pvt. Ltd, Winter Intern.**  
○ Project: **SkyPilot**
- Jun – Jul 2018 **New Jersey Institute of Technology, Summer Research Student.**  
○ Project: **MetaCap**
- Jun 2012 **As Samad Chem Pvt. Ltd, Freelance Programmer.**  
○ Project: **Iqra-e-Quran**

## Projects

- Aug 2020 – Present **FingerRover.**  
○ Designing a finger-based miniature robot for automated hand navigation.  
○ Conducted under the supervision of Professor Seungkook Heo, University of Virginia, USA.
- Feb – May 2020 **Present, [GitHub].**  
○ Dynamic QR code authentication algorithm based attendance management system.  
○ Conducted under the supervision of Professor Uttam Kumar Dash, Heritage Institute of Technology, Kolkata.
- Oct 2019 **SAFEDUN, [GitHub].**  
○ Image scrambling tool using chaotic map and color channel randomization.  
○ Conducted under the supervision of Professor Joydev Hazra, Heritage Institute of Technology, Kolkata.
- Apr – Nov 2019 **Air Writing, [Preprint] [Presentation] [ISI-Air Dataset].**  
○ Developed a system which allows users to trace numeric inputs in air in a continuous motion without the use of any external sensors.  
○ Created, collected and processed ISI-Air, an online air-written English numeral dataset.  
○ Conducted under the supervision of Prasun Roy and Dr. Umapada Pal, CVPR Unit, Indian Statistical Institute.

## Mar – Jun **Express-Cap.**

- 2019
  - Experimented with various Deep Learning techniques with special emphasis on facial emotion recognition to build an attention-based image captioning system.
  - Conducted under the supervision of Professor Joydev Hazra, Heritage Institute of Technology, Kolkata.

## Mar 2019 **Smart India Hackathon, 2019**, [Schematic].

- Qualified for the Grand Finale of SIH 2019 where we devised a system for digital extraction of off-cut plate shapes from metal sheets along with their organized inventory storage and re-use.

## Jan 2019 **SkyPilot**, [Abstract].

- Improved MissionPlanner's grid system, integrated custom UAV firmware for simulation, and redesigned the UI.

## Sep – Oct **NASA Space Apps Challenge, 2018**, [Poster].

- 2018
  - Secured the 1st prize in the regional round for building an application to compute the radiation exposure of a passenger onboard a flight, given its altitude and trajectory.
  - In the finals, processed datasets from NSIDC to visualize changes in sea level, ice area, and ice age around the polar regions to raise awareness for climate change.

## Jun – Jul **MetaCap**, [Poster] [Abstract].

- 2018
  - Developed an extension of Jenkins to capture metadata in a continuous integration workflow.
  - Conducted under the supervision of Dr. Reza Curtmola, New Jersey Institute of Technology, Newark.

## Sep 2017 **Stocker**.

- Developed a tool to monitor and obtain raw stock data from NSE/BSE markets into a spreadsheet with customizable scheduling options.
- Conducted under the supervision of Professor Hemanta De, Heritage Institute of Technology, Kolkata.

## Jun 2012 **Iqra-e-Quran**, [Media Coverage].

- Designed a system to extract individual speaker audio clips from large audio datasets of Quran translation and encode the extracted audio clips based on the specific MICR coding format.
- The generated data was used in IEQ, a product of As Samad Chem Pvt. Ltd, to read the Quran.

## **Publications**

- 2020 **Rahman, A.**, Roy, P., Pal, U.: *Air Writing: Recognizing Multi-Digit Numeral String Traced in Air using RNN-LSTM Architecture*. In: SNCS Special Issue *Machine Learning in Pattern Analysis*. **[Accepted]**
- 2019 **Rahman, A.**, Roy, P., Pal, U.: *Continuous Motion Numeral Recognition using RNN Architecture in Air-Writing Environment*. In: 5th Asian Conference on Pattern Recognition (ACPR 2019). **(Oral ~13%) [Accepted]** [Preprint]
- 2018 **Rahman, A.**, Curtmola, R.: *Capturing the Metadata in Continuous Integration Workflows*. In: NJIT's Book of Abstracts, 11<sup>th</sup> International Undergraduate Summer Research Symposium. pp. 101. [Abstract]

## **Leadership & Activities**

- Oct 2018 Conducted a workshop on UX/UI Designing at Heritage Institute of Technology, Kolkata
- 2017 – 2018 Treasurer of Rotaract Club of Altruism
- 2016 – 2017 Editor of Rotaract Club of Altruism
- 2016 Class Representative of IT Department at Heritage Institute of Technology, Kolkata
- 2016 - 2018 Community Outreach: Taught science, mathematics, computer and guitar to local community children
- 2010 – 2015 Local Self Government Executive at St. Xavier's Institution, Panihati

## **Technical Skills**

- Languages Python, Java, C, C#, MATLAB/Octave, R, ActionScript
- Web HTML, CSS, JavaScript, TypeScript, Angular, Node.js, jQuery, JSP
- Databases MongoDB, MySQL, SQLite
- Others L<sup>A</sup>T<sub>E</sub>X, Git, Maven, VHDL

## **Personal Skills**

- Languages English, Hindi, Bengali, Urdu
- Creativity Guitar, Ukulele, Electronic Music Production, Graphic Designing, Photography
- Hobbies Gaming, Singing, Creative Writing, Reading, Typing