


# Bhumika Mittal

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## EDUCATION

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### Ashoka University

Bachelor of Science, Computer Science; CGPA: **3.85**/4.00  
Minor in Mathematics, Entrepreneurial Leadership

Sonipat, India

Aug 2021 – Present

### Maheshwari Girls Public School

High School Diploma; AISSCE (Science Stream): 95.4%

Jaipur, India

Feb 2008 – July 2020

## RELEVANT COURSEWORK

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**Major coursework:** Computer Organisation and Systems, Operating Systems, Machine Learning, Software Debugging, Data Structures, Algorithm Design and Analysis, Computer Programming, Linear Algebra, Discrete Mathematics, Calculus, Multivariable Calculus, Security Engineering, Probability and Statistics, Symbolic Logic, Artificial Intelligence and Data Analytics

## RESEARCH/TEACHING EXPERIENCE

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### IIT Gandhinagar

Research Intern

Remote

May 2023 – Present

- Exploring frameworks for designing and evaluating DNN accelerators
- Simulating various architectures using simulators like Timeloop
- Area of work - Computer Architecture, Systems for ML, Deep Neural Networks

### Plaksha University

Teaching Staff

Mohali, India

April 2023 - June 2023

- Curated and taught a course on Microcontrollers to 200+ high school students
- Designed Game Dev Module - built 5 mathematical and hardware games
- Helped students build various IoT Projects using ESP32 chipset and other electronic components

### Lodha Genius Program

Teaching Assistant

Sonipat, India

May 2023 - June 2023

- Worked closely with Siddharth Kankaria (from NCBS) to prepare and deliver a course on Science Communication
- Assisted 50+ students with their science communication projects and Olympiad-level math problem sets
- Organised and managed the programme logistics

### Ashoka University

3 × Teaching Assistant

Sonipat, India

Fall 2022, Spring 2023

- TA for Introduction to Computer Programming, Discrete Mathematics, Strategy through Board Games
- Conducted weekly discussion sections and office hours for 60+ students
- Responsible for designing and evaluating assignments
- Student Feedback: 4.88/5

### Program in Mathematics for Young Scientists

Mehta Fellow

Remote

Summer 2020, 21

- 2021: Research on De-Brujin Sequences, course on Number Theory, attended various mini-courses
- 2020: Exploration research on the Fibonacci Numbers, course on the Graph Theory, completed Problem Sets

## PUBLICATION

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### On the Existence of Balanced Generalized de Bruijn Sequences

Bhumika Mittal, Haran Mouli, Eric Tang, and Matthew Baker

Discrete Mathematics Journal

April 2023

- *Abstract:* A balanced generalized de Bruijn sequence with parameters  $(n, l, k)$  is a cyclic sequence of  $n$  bits such that (a) the number of 0's equals the number of 1's, and (b) each substring of length  $l$  occurs at most  $k$  times. We determine necessary and sufficient conditions on  $n, l$ , and  $k$  for the existence of such a sequence.

## WORK EXPERIENCE

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### Atlas Fellowship

*Talent Coordinator*

Remote

*Aug 2022 – Oct 2022*

- Strategised the Outreach for the Atlas Fellowship launch in India.
- Ran a campaign and managed a team of 12 to reach out 2500 top schools and 3000 coaching centres in India.
- Achieved the 148% increase in applications for the program.

### Lehigh University

*Innovator*

Bethlehem, US

*May 2022 – Jun 2022*

- Consulted Global Good Funds, a venture capital that invests in companies led by social entrepreneurs with a preference for companies led by people of color and women.
- Established clear and identifiable metrics to measure the non-monetary impact (such as ESG goals) of the ventures to determine the optimal investment strategies.

### Young Scholars Programme (YSP)

*Office Counselor*

Sonipat, India

*May 2022*

- Developed an infrastructure for the program by integrating different platforms
- Automated various processes for the program including workshop allocation, letter sharing, etc.

### Brand warikoo

*Tech and Product Intern*

Remote

*Feb 2021 – April 2022*

- Ideated and built the *WebVeda* platform for the courses, which hosts 300k learners and helped in generating revenue of \$1Mn within 10 months.
- Managed different tech aspects of the brand, including payment gateway, email integration, etc.

## HONORS AND AWARDS

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2022	<b>Undergraduate Research Excellence Award</b> , Department of Mathematics, Ashoka University
2021-23	<b>Dean's List</b> (every semester), Dean of Academic Affairs, Ashoka University
2022	<b>AWS AI &amp; ML Scholarship</b>
2019	<b>Most Powerful and Serene (Best Student) Award</b> , Maheshwari Girls Public School
2019	<b>Winner</b> , National Ideationology Challenge
2018	<b>Best in IT</b> , Maheshwari Girls Public School
2018	<b>School Topper</b> , National Cyber Olympiad
2017	<b>Runner-up</b> , District Level Shot Put Competition

## OTHER ACTIVITIES

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### Academic Affairs Board

*CS Representative*

Ashoka University

*May 2023 – Present*

- Working with the Department of Computer Science, and the Academic Advisory Board

### Computer Science Society

*Advisor, Interim President*

Ashoka University

*Aug 2022 – Present*

- Conducted weekly workshops and events, and led 20+ active members team

### Entrepreneurship Club

*Director of Events*

Ashoka University

*Jan 2022 – May 2023*

- Ideated and organised various events, like Startup Ashoka, to encourage entrepreneurial spirit among students

### Mathematics Colloquium

*Presenter*

Ashoka University

*April 2022*

- Presented research paper on deBruijn sequences to senior undergraduates, Ph.D. students and faculty members

## SKILLS

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**Programming:** Python3, C/C++, Java, Assembly, Shell R, SQL, HTML/CSS, Markdown, L<sup>A</sup>T<sub>E</sub>X

**Others Tools:** Github, Arduino, ESP32, Raspberry Pi Pico, WordPress, MS Excel

**Languages:** Hindi, English