

DHRUV MANTRI

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EDUCATION

The Shri Ram School, Mousari, Gurugram, India;

- ISC, Grade 11 and 12;
- ICSE, Grade 10

2010 - Present
2022 - Present
2021 - 2022

STANDARDIZED TESTS AND APs

- ACT: Composite – 32, Math – 36, Science – 33, English – 30, Reading – 30
- AP Examinations: Physics C: Mechanics – 4

2023
2023

ACADEMIC HONORS AND AWARDS

- Gold Medal in Hong Kong International Mathematics Olympiad (Final Round)
- Silver Medal in Hong Kong International Mathematics Olympiad (Heats Round)
- Zonal Gold Medal of Distinction in SOF International English Olympiad
- Global 97th Percentile Certificate in Callido Learning Research Competition
- Subject Achievement Award in Computer Science in Grade 11
- Class Topper Gold Medal of Excellence in SOF International English Olympiad

2023
2023
2023
2022
2023
2021

ENGINEERING AND TECHNOLOGY EXPERIENCES AND RESEARCH

Research:

Hydrogen in the Iron and Steel Industry: A Comprehensive Review

2022 - 2023

Wrote a paper reviewing the current state of hydrogen utilization in the iron and steel industry, highlighting its potential and challenges to reduce carbon emission and make green steel.

Independent Researcher under M. Kalyan Phani, Professor at Centre of Excellence in Steel Technology, OP Jindal University, Raigarh

- Discussed methods of replacing current steel manufacturing technologies with hydrogen integrated steel manufacturing technologies.
- Discussed production and types of hydrogen and summarized the scenario and prospects in India specifically.
- Discussed challenges in usage of hydrogen in the steelmaking industry.

Economics and Need of Carbon Capturing

2022 - 2023

Wrote a paper review addressing the escalating CO₂ emissions, highlighting the urgent action required, and discussing methods of economically viable technologies for carbon capture, its challenges, and prospects.

- Explored the challenges in implementing carbon capturing technologies in various industries due to techno-economic reasons.
- Emphasized the potential of carbon capture technologies and the importance of cost-effective utilization.
- Explained the concept of Carbon Capture and Utilization (CCU) and the ongoing efforts to develop technologies.
- Provided an overview of different carbon capturing technologies, including solvent-based, gas-solid reactions, adsorption, cryogenic, microalgae, membra, and natural inclusion processes.

Applications of Flexible and Stretchable Electronics for Energy Harvesting

2023 - Present

Creating a theoretical speed breaker that harvests energy from the pressure of vehicles using piezoelectric effect.

Independent Researcher under Ms. Megumi Tanaka, Researcher at University of California, Berkeley

- Building a theoretical speed breaker which converts mechanical energy to electrical energy using piezoelectric effect.
- Forming an equation to evaluate if the theoretical device can be profitably launched to reduce greenhouse gas emission.
- Discussed prospects of flexible and stretchable electronics in the field of energy harvesting.

Internships:

Jindal Steel & Power Ltd., Odisha, India (<https://www.jindalsteelpower.com>)

2022 - 2023

Jindal Steel & Power Ltd. is one of the largest steel manufacturing companies in India. It also has mining and power generation. Its largest steel plant is in Angul, Odisha, which is planned to be expanded to world's biggest steel plant.

Paid Intern under Mr. Ashish Pandey, Vice President

- Interned at India's most modern 6 million tonnes per annum steel plant at Odisha for one month in June 22 and 4 weeks in June 23.
- Assigned to study and evaluate upcoming environmentally efficient steel manufacturing technologies.
- Learned efficient steel making process entirely and how large companies function.
- Studied carbon emission data at Blast Furnace, DRI, and Coal Gasification Plants.
- Used my earnings in my social initiatives - Vatika and Kachhi Basti - to buy supplies, fund events for the students at Vatika, and buy festive gifts and shoes for the families at Kachhi Basti.

Clean Current Pvt. Ltd., Delhi, India

2020

During Covid-19 pandemic, when the country was facing shortage of covid protection material, Clean Current started to supply Covid protection material such as infrared thermometers, masks, oximeters, oxygen concentrators under brand Carement. It sold covid protection material across India through Amazon and Flipkart.

Paid Intern under Mr. Ronak Mandhana, CEO

- Listed Covid-19 safety related products on Amazon and Flipkart.
- Led a team of 4 and scheduled orders, managed sales, invoice, address slips, of around 1000 shipments per day for 2+ months.
- Did bookkeeping on Microsoft Excel and kept record of purchase, sale, and inventory.
- Designed and edited pictures and videos for the listings, and flyers for awareness and marketing.

- Used my earnings in my social initiatives - Vatika and Kachhi Basti - to buy supplies, fund events for the students at Vatika, and buy festive gifts and shoes for the families at Kachhi Basti.

Raj Cottons Pvt. Ltd., Bhilwara, India

2022

Raj Cottons Pvt. Ltd. is engaged in manufacturing of cotton fabric. It converts cotton yarn to fabric and sells the same.

Job Shadowed under Mr. Ankit Rath, Founder

- Accompanied the founder of the company for 1 week and studied cloth manufacturing, processing, and distribution.
- Visited a weaving plant (Jai Tex Fab, Bhilwara) and a processing plant (Janki Corp Ltd., Bhilwara) and learned about industrial machineries used and jobs of various employees.
- Learned the ideal marketing strategies for the fabric and textile industry.

Summer Programs:

Young Technology Scholars, Plaksha University (Online)

2020

- Learned programming in Python and coded 'Snake Xenxia' – a popular game.
- Attended lectures on Coding and Technology from Dr. Ravi Jasuja (Translational Research & Discovery, Harvard Medical School), Dr. Hanumant Singh (Multidisciplinary Centre for Robotics, Ex scientist, MIT-WHOI), Dr. Jitendra P. Khatait (IIT-Delhi).
- Worked on the development of game logic and bot design and projects with hardware interfaces including circuit boards.

HISTORY PURSUIT AND OUTREACH

National Museum, Delhi, India (<https://nationalmuseumindia.gov.in/en>)

2023

The National Museum is one of the largest museums of India and holds artefacts ranging from pre-historic era to modern works of art.

Intern with ITHAAS

- Followed up with this internship after another internship with ITHAAS in 2019 at the National Gandhi Museum where I researched about the galleries and its artefacts and trained as a tour guide for the visitors.
- Studied the conservation and restoration of artefacts spanning across 5000 years and Presented research on an artifact of the museum.
- Created an audio guide in Hindi and English along with a map of the Pre-Columbian and Western Art Gallery for visitors, acted as a tour guide, and interviewed visitors for their impression of the museum and the audio guide.
- Got permission to display and provide the audio guide to the visitors of the museums temporarily.

COMMUNITY OUTREACH

Vatika, Co-Founder (Instagram: <https://www.instagram.com/vatika.india>)

2016 - Present

Initiative to provide holistic education to underprivileged children in a park of my neighborhood.

- Take 1/1.5 hour classes every weekday.
- Organize classes, lunches, events, activities, and festive celebrations for 40+ students for 7+ years.
- Held a workshop for parents of the students to promote the idea of education and to guide with school admissions of students.
- Enrolled 4 volunteers who regularly mentor the students and received unsolicited donations from 10+ strangers in the park.
- Featured in a news article - <https://www.jantakareporter.com/entertainment/meet-delhis-mother-son-duo-nisha-and-dhruv-mantri-who-are-transforming-lives-of-underprivileged-children/405856/>
- Received National Recognition - Tiranga Badge Silver Award for achievements in the field of service to people and society.

Donate for Oxygen and Save Lives, Online Fundraiser

2021

Fundraiser to provide oxygen concentrators and other Covid-19 supplies to people in need.

- Successfully raised money over the target in two weeks - ₹6,85,028 with the help of 153 generous donors.
- Arranged 9 oxygen concentrators, oximeters, thermometers, PPE kits etc. for hospitals in a small town - Kuchaman City in Rajasthan.
- Featured in 50+ news articles - 20 newspapers across India and in the Khaleej Times (national newspaper of U.A.E) and in over 30 online news articles.
- Received Excellency Award by The International Association of Lions Club for creating awareness and helping covid-19 patients.
- Received Certificate of Appreciation by Subdivision Authorities given by the government authorities for exceptional social work.

Kachhi Basti Welfare Program, Kuchaman City Initiative

2017 - Present

Initiative to provide food, festive gifts, and clothing to the underprivileged population of approximately 300 people of Kuchaman City.

- Donate Indian sweets, and festive gifts such as water balloons, candles etc. for festivals such as Diwali, Holi etc. every year since 2017.
- Partnered up with Lions Club International to spread awareness and provide for the whole area.
- Donated 60+ pairs of shoes to families at the Kachhi Basti.
- Received International President's Certificate of Appreciation by The International Association of Lions Club.

FOOTBALL ACHIEVEMENTS

- Represented North Region at Nationals U19 Tournament, Odisha 2023
- Runner-up and represented Delhi NCR at the NR Regionals U19 Tournament, Punjab 2023
- Winners at the Zonal U19 Tournament, Delhi 2023
- Represented school at the NWR Regionals U19 Tournament, Gujarat 2022
- Runner-up at the Pre-Subroto U17 Tournament, Delhi 2022
- Represented school at the IBSO National Tournament, Maharashtra 2019

INTERESTS AND SKILLS

- Photography and Cinematography
- Photo, Video, and Audio Editing