Idhant Mittal

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EDUCATION

The International School Bangalore (TISB), Bangalore, India; 2018 – Present
– *International Baccalaureate Diploma Program, Grade 11-12*; 2023 – Present
– *Cambridge IGCSE Board Examinations, Grade 10* 2021 – 2023

STANDARDIZED TESTS

- **SAT Total – 1530; Reading – 740; Math – 790;** October 2024
- **TOEFL** appearing on 30 Oct 2024

ACADEMIC HONORS AND AWARDS

- **St. Yau**: cleared round 1 for Physics Research paper titled, "An In-Depth Investigation of Emerging Nanomaterial Technologies for Antimicrobial textiles" 2024
- **CEMC Pascal Mathematics Contest:** Received Distinction Feb 2022
- **CEMC Cayley Mathematics Contest:** Received Distinction Feb 2023
- **CEMC Fermat Mathematics Contest:** Received Distinction Feb 2024
- **Canadian Intermediate Math Competition:** Received Distinction Nov 2022
- **International Math Olympiad Challenge:** Received Distinction Feb 2022

INNOVATION

Rancho Labs, Delhi, India (www.rancholabs.com).
2023
Supported by the Technology Innovation Hub of the Indian Institute of Technology Delhi (IIT), Rancho labs is a dedicated team founded by IIT Delhi alumni in 2019 to inspire students' interest in technology fields like AI, coding, Robotics though experiential learning.
- Attended educational lectures with Rancho Labs, a one-on-one STEM education organization
- Used Tinker CAD to analyze concepts & simulate systems & programs prior to implementation
- Worked on projects like guidance using radar systems, home automation, smart irrigation systems

TEXTILES RESEARCH

Physics Research Paper under Dr. Amit Mahajan, India 2024
Worked with Dr. Amit Mahajan to develop an original research paper in the domain of soft/living materials titled "An In-depth Investigation of Emerging Nanomaterial Technologies for Antibacterial Textiles".
- Studied utility of nanoparticles in creation of antimicrobial and antiviral textiles, considering toxicity
- Published in International Journal of Advances in Engineering and Management (IJAEM) Vol. 6, Issue 06Created and used a risk assessment questionnaire to diagnose osteoporosis

STEM EXPERIENCES AND RESEARCH

Internship
Happy Forgings Ltd., Ludhiana, India (happyforgingsltd.com) Dec 2023- Jan 2024
- Completed a 3-week long internship at Happy Forging
- Learned processes involved in the forging, manufacturing, and machining of steel and iron alloys.
- Observed end-to-end part delivery processes, from procurement, refining, forging, to delivery.
- Gained experience in metallurgy lab

Summer Programs
- Stanford Pre-Collegiate University Level Online Math & Physics June 2024- Aug 2024
- Selected to attend the online credit bearing 'Multivariable Differential Calculus (XM521)' course
- Studied differential calculus for functions of two or more variables, covering topics like vectors in 2- and 3-space, partial derivatives, curvature, maxima, minima, gradients, directional derivatives

- **Yale Young Global Scholars (YYGS),** Yale University, New Haven, USA Jul 2023
- Selected to participate in two-week long, in-person 'Innovations in Science & Technology' course
- Attended lectures on game theory, eco-friendly alternative transport, anti-cheat technology for chess
- Researched and presented the ethics of Artificial Intelligence in the context of self-driving vehicles
- Designed a robot to for application in firefighting and chose appropriate materials for its construction

- Johns Hopkins Engineering Innovation Pre-College Programs (online). June-July 2022
- Selected to participate in the 3-week long online 'Explore Engineering Innovation' course
- Attended lectures in mechanical, civil, chemical, electrical and computer engineering and material science
- Analysed the tensile strengths of spaghetti, vermicelli, and angel hair; used analysis to aid in design and construction of a stable bridge
- Observed functions and applications of chemical reactions and heat transfer in context of active bioreactors
- Ideated electronic device to support users' health and well-being; presented the idea to peers and mentors
- Designed and built a mouse trap out of simple materials such as paper, rubber bands, and glue

School Activities

-Editor, Photon Magazine, TISB. March 2024-Present

● Edited the quarterly-published Physics and Engineering focused Photon Magazine at TISB
● Selected and proofread articles sent in by peers; curated articles to be published in the magazine
● Dedicated an hour per week to writing articles for the magazine; attended weekly hour-long meetings to discuss topics of focus, direction of the publication, and organize with other founders
● Wrote articles on the aerodynamic analysis of protective halos on Formula One race cars

- Robotics Club Aug 2023 – May 2024

● Regularly attended weekly educational meetings as member of the TISB Robotics Club
● Contributed to projects such as a robot operating with the help of infrared sensors to avoid any obstacles in its path, and a path following robot that can follow routes laid out in black tape
● Learned about robotics components like DC motors, thermistors, relays, light-dependent resistors

- Communications head, Pi-thon: Inter School Math Competition Mar 2024

● Selected as one of 12 members in organizing committee of Pi-thon inter-school math competition
● Regularly attended meetings to discuss logistics of event and specifics of competition
● Created merchandise for competition, raised funds, and drove participation among students

Online Courses

- Six Sigma: Certified Lean Six Sigma White Belt (Accredited). Oct 2024

● Studied quality, roles in Six Sigma, data analysis through histograms, pareto & run charts
● Learned tools such as Check Sheets, Fishbone Diagrams, and SIPOC mapping

SCIENCE & TECHNOLOGY OUTREACH

Founder, The Accessible Schools Network March2024-Present

-Founded The Accessible Schools Network to raise awareness about accessibility measures for children with special abilities for The Social Action Group.

- Drafted an original survey to gauge requirements of school to increase accessibility in targeted areas of education, access, inclusion, learning materials, teaching methods, school infrastructure
- Assisted Social Action Group redesign brochure to highlight key features of Ek Prayaas
- Created an original guide based on information gained from survey with direct recommendations
- Ideated an original automated facial recognition door system for motor-challenged students' accessibility needs while maintaining security and keeping vulnerable persons safe and secure
- Raised funds to support Ek Prayaas' educational endeavors, daily operations and activities

Science kits to government schools.

Volunteer, Vehra Thiyada School 2023

- Created and distributed science kits with air cannon and balloon car to describe and explore concepts of air pressure and volume along applications at Vehra Thiyada, a school in Punjab
- Conducted workshop sessions with students at school, assembling kits and explaining concepts

SOCIAL EMPOWERMENT INITIATIVE

Founder, Rags to Bags Oct 2022- present

- Founded Rags to Bags initiative to upcycle cloth waste generated during the creation of garments
- Provided women working in the garment industry with livelihood opportunities and economic empowerment through selling newspaper bags via an affiliation with Pink Earth, a company that manufactures paper bags
- Displayed the women's handiwork at trade shows and exhibitions such as:
    - Wind Xmas Carnival (December 2022)
    - HOL by Aakriti Anushka (April 2023)

ACTIVITIES

- *Head of Merchandise, VIVUM: Inter School Sports Festival* Apr 2024 - Aug 2024

● Sourced Various Merchandise from across the country for the annual school festival
● Earned a revenue of 17 lakh INR (as the part of a two-member committee) to donate to charity

- *Head of Merchandise, XAVAGE: Economics and Business Fest* Sep 2024 - Oct 2024

● Curated tie-ups with various companies to source merchandise for sale
● All proceeds went towards charity

INTERESTS

Coding, Art, Cricket