



## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	B.TECH	IIT Kharagpur	9.00 / 10
2022	XII - CBSE	ODM Public School, Bhubaneswar	96.2%
2020	X - CBSE	St. Xavier High School, Khandagiri	98.2%

## AWARDS AND ACHIEVEMENTS

- Achieved a change of branch at the end of the first year at IIT KGP among top **10%** of the student body during the academic year 2022-23
- Secured a stellar rank of **749** in the National Entrance Screening Test (NEST) of 2022 conducted by NISER for admission to IISERs and NISER
- Secured a state rank of **16** in the Regional Mathematics Olympiad (**RMO**) 2018-19 for Odisha region which was conducted by HBCSE, TIFR
- Qualified for the Indian National Mathematics Olympiad (**INMO**) of 2021 - a screening test to represent India internationally in IMO 2021
- Qualified the National Talent Scholarship Exam (**NTSE**) stage I 2019 under National Council of Educational Research And Training (NCERT)
- Qualified the Junior Mathematics Olympiad (**JMO**) 2018 for Odisha region conducted by the Odisha Mathematics Society (OMS) with merit

## INTERNSHIPS AND PROJECTS

- Simulation of Reactive Fracture Flow | Research Internship | DCEPE | IIT Kharagpur** [Apr 2024- Jul 2024]
- Developed **MATLAB codes** and used **COMSOL** to simulate fracture flow while doing several experiments, under **Dr. Sandeep D. Kulkarni**
  - Successfully Developed a MATLAB Model using **MRST** to simulate water flow in a porous rock with desired **embedded fracture networks**
  - Utilized **Hierarchical Fracture Matrix (HFM)** to incorporate pressure equation and mass transfer equation to depict inlet fluid propagation
  - Implemented a **Newton Iterative Solver** to solve the above 2 equations as well as simulated the same in **COMSOL** Multiphysics software
  - Attempted to **couple** the fracture flow simulations with **PHREEQC** software in order to show reactive transport modelling in porous rock
- Detection of Malaria using Computer Vision on Cells with Python | Self Project** [Feb 2024 - Apr 2024]
- Utilized Kaggle datasets of parasitized and uninfected cell images to train **deep learning** model to detect **malaria** from random cell image
  - Utilized **TensorFlow** and **Keras** in coordination to build convnets and **Convolutional Neural Networks (CNNs)** to process the above data
  - Improved the accuracy and the precision of the CNN by feeding **30000+ images** of uninfected and parasitized cells for training the model
  - Successfully computed the required codes and saved the model to google drive for further fruitful applications in medicine in the future
- Unconventional Drug Delivery Systems | Research Internship | TIH | IIT Guwahati** [Nov 2023 - Dec 2023]
- Performed experiments, analysed data and modelled equations for development of **membrane-based vaporizers** for liquid anaesthesia
  - Successfully developed a **prototype model** to integrate multiple **rotameters, sensors and reactors** under **Dr. Senthilmurugan Subbiah**
  - Facilitated unconventional mechanisms to deliver anaesthesia to patients on a controlled basis: **membrane** and **pump-based vaporizers**
  - Theoretically verified the legitimacy of the above prototype setups through error analysis and sensor readings with an error of **under 8%**
- Weather Monitoring System | DIY Lab Project | IIT Kharagpur** [Jan 2023 - Apr 2023]
- Led a group of 4 first years to build a prototype of a **Weather Sensing Model** for the purpose of a group project for academic coursework
  - Successfully incorporated an **Arduino** circuit, **screen** and **humidity, temperature** and **pressure** sensors to display accurate live updates
  - Made connections and soldered the sensor terminals to ensure a well-calibrated strong base and formed the basis for a full-scale product
  - Computed the Arduino codes to make use of all the sensors and classify current weather conditions into **rainy, dry** and **humid weather**

## SKILLS AND EXPERTISE

**Programming Languages:** C | C++ | MATLAB | Python | Structured Query Language (SQL)  
**Softwares:** COMSOL | Ansys | VS Code | Autocad | Solidworks | Adobe Illustrator | Adobe Photoshop | PHREEQC | MS Excel | MSWord  
**Libraries and Frameworks:** MATLAB Reservoir Simulation Toolbox (MRST) | C++STL | TensorFlow | NumPy | Keras | PyTorch

## COMPETITION/CONFERENCE

- General Championship ChemQuest 2024 | Gold Winner**
- Played a crucial role in the **gold winning** participation of Meghnad Saha Hall of Residence in the ChemQuest Competition, held by TSG
  - Coordinated with 7 sophomores to research and brainstorm strategies regarding given problem statement on **EMI shielding of electronics**
  - Executed a detailed **comparative study** on **3** different **composite polymers** to be used for appliances on multiple bases and properties
- Open IIT Case Study 2024 | Gold Winner**
- Developed market entry plan for ride-sharing services in Chennai, analyzing hotspots data to identify underserved and high-demand areas
  - Reduced the driver acquisition costs by **20%**, proposing **driver onboarding strategies** and **corporate partnerships** for offering incentives
  - Designed retention strategies increasing retention by **15%** including **referral programs** and **ride subscriptions** based on behavioral insights

## POSITIONS OF RESPONSIBILITY

- Core Team Member | Chemical Engineering Association | IIT Kharagpur** [Jul 2023 - Apr 2024]
- Collectively worked with a team of selected sophomores and seniors to conduct the annual chemical department fest: **FUGACITY 2024**
  - Managed sponsorships and planned events and competitions for the fest while coordinating with multiple **alumni, MNCs** and **institutions**
  - Planned proper **finances, deadlines** and **logistics network chains** for timely delivery of **posters, banners, standees** and **decorations**
  - Reached out to **renowned experts** to ensure proper **judges** for competitions and **tutors** for numerous **events, seminars** and **sessions**
- Secretary of Maintenance | Meghnad Saha Hall of Residence | IIT Kharagpur** [Aug 2023 - Apr 2024]
- Managed the electrical, civil and sanitary affairs of over **500** UG and PG students boarding Meghnad Saha Hall of Residence, IIT Kharagpur
  - Supervised a team of over **20 hall workers** to manage a daily cleaning of over 500 occupied rooms spread among **15** residential blocks
  - Disbursed over **3,00,000 INR** from the hall budget to maintain and procure **water purifiers, public lights** and **repair and cleaning supplies**
  - Led over **100** sophomores to organise a display of **themed illustrations** with arrays of diyas for **Illumination 2023**, held by **TSG** on Diwali
  - Coordinated with multiple wholesale and furniture stores to procure diyas, oil and wicks and rent tables and chairs for **Illumination 2023**
- GES Intern | Entrepreneurship Cell | IIT Kharagpur** [Dec 2022 - Mar 2023]
- Conducted **Global Entrepreneurship Summit (GES) 2023** under Entrepreneurship Cell with 50+ web, core and design team members
  - Involvement in **Design Team**, particularly in creation of **posters** and **standees** for numerous **competitions, events** and **sponsor media**
  - Involvement in **Core Team** in inviting students and professors of other institutes for participation and startups for events and sponsorship
  - Assisted in formation of a **contingent** with Centurion Jatni College of Odisha state to ensure 200 participants with net fee of **2,20,000 INR**