

# Sanskar Mittal

3rd Year Undergraduate  
Department of Materials Science and Engineering

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## Academic Qualifications

| Year           | Degree/Certificate | Institute                                  | CPI/%  |
|----------------|--------------------|--|--------|
| 2019 - Present | B.Tech             | Indian Institute of Technology Kanpur      | 8.5/10 |
| 2019           | CBSE(XII)          | Annie Besant School, Indore                | 90.6%  |
| 2017           | CBSE(X)            | Sacred Heart Co-Ed Sr. Sec. School, Indore | 10/10  |

## Achievements

- Secured **All India Rank 4803** in JEE Advanced 2019 among the 2.45 Lakh shortlisted candidates
- Secured **All India Rank 2971** in JEE Main 2019 among the 1.2 Million candidates from all over the country
- Secured **All India Rank 635** among 50,000 students in KVPY'17 conducted by IISC Bangalore
- Bagged **Silver Medal** among **22 IITs** for RuTAG-NE'S Agrobot Design Innovation Challenge in **Inter-IIT Tech Meet 9.0**.
- Qualified for **Round 3 of Flipkart Grid 2.0** Robotics Challenge, **top 120** among 6000 plus teams nationally

## Key Projects

### Converstaional Bot

May'20- Jul,20

Robotics Club IIT Kanpur

- Built a **talking bot**, which listens to users voice and generate **meaningful and contextual response** according to their intent
- Engineered **word2vec** and **glove** model for **word embeddings** and **CTC model** for converting input audio to text
- Implemented **context-based** and **topic-based attention models** for response generation using Tensorflow and Keras

### Yoga Recommendation System

May'21-Jul'21

Faculty Advisor: Veena Bansal IIT Kanpur

- Performed **web-scraping** using BeautifulSoup to **collect data** on benefits, contraindication and postures for various yoga asanas
- Built an **NLP model** to recommend yoga asanas to users on the basis of diseases, gender, age and flexibility
- Used Tensorflow to make a model based on CBOW architecture, recommending top 5 asanas with **accuracy of 87%**
- Worked in a team to deploy the model on a **fully functional website**, using HTML and CSS for front-end, Laravel for back-end

### Agrobot Design Innovation Challenge

Feb'21 - Mar'21

Rural Technology Action Group-North-East, 9th Inter IIT Tech Meet

- Exhibited **team entrepreneurial skills**, designed **mechanised solutions for farming in hilly terrains** using Autodesk
- Utilised V-Rep to **simulate a semi-autonomous robot** performing farming tasks like seeding, ploughing and transplantation
- Scaled** the model for **actual implementation** leading to **decrease in time to 33%** and presented it bagging **Silver medal**

### Traffic Sign Recognition

Mar'21

Self Project

- Trained a CNN model on a traffic sign dataset consisting of over **50000 images** divide into **43 different classes**
- Accuracy** of **92.21%** on training data, **97.70%** on validation data and **98.58%** on test data was obtained

## Technical Skills

- Programming Languages:** C, C++, Python, L<sup>A</sup>T<sub>E</sub>X, MATLAB, R, PHP, Bash
- Utilities:** Gazebo, ROS, Git, AutoDesk Inventor, Arduino, TinkerCad,
- Libraries:** Tensorflow, Pytorch, OpenCV, Matplotlib, BeautifulSoup, Selenium, Numpy

## Relevant Courses

\* : Ongoing \*\* : MOOC

|                                    |                                     |   |
|------------------------------------|-------------------------------------|---|
| Probability and Statistics         | Fundamentals of Computing           | Real Analysis and Multivariate Calculus |
| Introduction to Electronics        | Linear Algebra and ODE              | Computational methods in Engineering*   |
| Mathematics in Computer Science-I* | Neural Networks and Deep Learning** | Improving Deep Neural Networks**        |

## Positions of Responsibility

### Team Head, VISiON IITK

Apr'21-Present

Software Team Lead of VISiON IITK, research robotics team under Gymkhana IIT Kanpur

- Leading** a team of **18 UG** students to participate in **AI Driving Olympics** - Duckietown
- Mentored **13** new members of team in various technical topics like **ML, Computer Vision, ROS and Gazebo**

### Manager, Robogames,Techkriti

Jan'21-Apr'21

- Lead a 3-tier team** of 10 Senior and 15 junior executive to conduct **Robotics events** in annual Technical Fest **Techkriti'21**
- Planned and organized **virtual Robotics competitions** with participation from **1000 plus students** across the country

### Secretary, Robotics Club

Apr'20-Mar'21

- Successfully conducted workshop on **Color Based Obstacle Detection** using **OpenCV** for more than **400 freshers**
- Helped Coordinators in organizing **month-long lecture series** on topics like Computer Vision, Control & Simulations

## Extra-Curricular Activities

- Mentored** 20 plus students in a project on Swarm Robots and Algorithms in SnT Summer Camp'21
- Participated in **Dramatics** events in Galaxy'20 Intra-IITK cultural competitions securing **first position** in Street Play & mime
- Participated in **Robotics** events in Takneek'19 Intra-IITK Technical Competition, with **first position** in Wild Soccer