

Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2019 - Present	B.Tech	Indian Institute of Technology Kanpur	7.0/10.0
2019	Class XII (CBSE)	MM Public School Pitampura, Delhi	93.8%
2017	Class X (CBSE)	SD Vidya Mandir, Panipat	10/10

Scholastic Achievements

- Secured **All India Rank 6033** in **JEE Advanced 2019** among the 2.45 Lakh shortlisted candidates
- Secured **All India Rank 21999** in **JEE Mains 2019** among the 11.47 Lakh shortlisted candidates
- **Vapi City Topper** in **13th National Science Olympiad 2011** with a score of **99.73 %** and **All India Rank 145**
- Cleared **Phase I** testing and qualified for **Microsoft’s Engagement & Mentorship Program – Engage 2021**
- Secured **All India Rank 27** in National Race of Amazon’s **AWS DeepRacer Women’s League 2021**

Key Projects & Workshops

Modeling Subsurface Mine Detonation | Research Project - SURGE 2021

Mentor: Professor Ishan Sharma, Dep. of Mechanical Engineering | Students-Undergraduate Research Graduate Excellence Program

May’21 - Present

Aim	● Modeling a flail system to trigger and detonate mines wherever buried
Tasks	● Analyzing the transfer of stresses from the point of impact of the flail to the location of the buried mine ● Performing simulations using LAMMPS and OVITO to study how waves travel through discrete media like soils ● To simulate a granular bed, impact it with a flail & analyse the stress transfer through the bed
Progress	● Conducted Literature Review on design of flails and force transmission below the surface of soil ● Constructed a granular bed of 5000 atoms using LAMMPS input script, simulated settling of atoms under the effect of gravity and currently assessing the Total Kinetic Energy Analysis of the system of atoms

3D Shape Completion for Autonomous Vehicles | Robotics Club IITK

● Aim: Building a model which predicts the shape of objects, detected through LiDAR data and RGB images
● Implemented semantic segmentation for KITTI semantic dataset using UNET architecture to mask cars only
● Achieved a final precision of 0.9407 on training and 0.9429 on validation after training the UNET model for 25 epochs
● Currently doing Literature Review on Deep Generative Modeling and implementation of Variational Autoencoders (VAEs)

May’21 - Present

Microsoft Teams Clone Application | Microsoft Engage Mentee 2021

● Implemented a video call application with WebRTC API using Scaledrone as the signaling server
● Incorporated RTCPeerConnection instance to establish WebRTC connection between local computer and a remote peer

Jun’21 - Jul’21

Facial Expression Recognition using ML | Brain and Cognitive Society IITK

● Replicated a paper on CNN study FER with Convolutional Neural Network via a new face cropping & rotation strategy
● Employed data augmentation, image cropping and CNN while working in a team of 9 members
● Achieved a final accuracy of 93.46% and 90.54% on JAFFE and CK+ dataset respectively for 7 classes
● Conducted Literature Review on the current methods of Facial Expression Recognition

May’20 - Jul’20

BCS Workshop | Brain and Cognitive Society IITK

● Learnt Basic Python, Machine Learning, Computational Modelling and Psychophysics
● Designed a psychophysics experiment based on The Role of Categorization in Visual Search for Orientation using PsyToolkit
● Achieved a final accuracy of 93.46% and 90.54% on JAFFE and CK+ dataset respectively for 7 classes
● Conducted experiment on 7 participants and analysed the data using Numpy, Pandas & Matplotlib

Apr’20

Mechanical Watch Model (Course Project) | Professor Nachiketa Tiwari, Dep. of Mechanical Engineering

● Designed an artistic working model of the ETA 6497-1 Manual Wind Watch in a team of 14 members
● Analyzed the working of a mechanical watch and various mechanisms involved for energy transmissions
● Implemented Fusion 360 to model the operative watch and added extra functionalities for displaying the day and date as well

Jan’21 - May’21

Work Experience

Sybylline Robotics Private Limited IC IITP | Summer Intern

● Comprehended various basics of ROS2 (Robot Operating System 2), Client Libraries and URDF (Unified Robot Description Format)
● Brainstormed on simulations in Gazebo, Rviz using Nav2 library to perform navigation related actions
● Currently working on simulations and navigation analysis of floor disinfecting and medical delivery robot using Gazebo and Rviz

May’21 - Present

UnchAI | JEE Mentor

● Tutored in UnchaAI, a tech-ed startup by IITK and NITP alumni, which provides a mentorship platform to JEE aspirants
● Mentored JEE aspirants with their PCM doubts, designed a customized time table & metric to track their performance periodically

Sep’20 - Oct’20

Self Projects

MNIST Digit Recognizer | Kaggle Submission

● Implemented a Convolutional Neural Network with dropout and batch-normalization layers
● Analyzed the performance of the classification model by plotting Confusion Matrix
● Examined the predicted versus true labels for the top 16 wrong predictions
● Achieved a final accuracy of 99.08% upon submission on kaggle

May’21

Positions of Responsibility

Manager Research Wing | Academics and Career Council IITK

Apr'21 - Present

Leadership	<ul style="list-style-type: none">Led a team of 12 secretaries working towards promoting research culture amongst the studentsGuided the team to work as a unit aimed at assisting the Research Community in fulfilling its needs
Initiative	<ul style="list-style-type: none">Introduced Student Spotlight to create more awareness about remote research amidst the global pandemicGuided a team of 3 secretaries to edit blogs for Student Spotlight on Research Wing's website
Impact	<ul style="list-style-type: none">Conducted sessions targeted for UG community to increase interaction with alumni in research communitySuccessfully hosted InVar sessions (Industry vs Research) to help students explore various career prospects

Secretary Research Wing | Academics and Career Council IITK

Apr'20 - Mar'21

- Approached **15+ startups** for **internship positions** in the field of **E-vehicle R&D** to help students get internship during lockdown
- Interacted with **IITK alumni** and documented their **research experience** in the form of **AnC Blogs**

Student Guide | Counselling Service IITK

Oct'20 - Jul'21

- Provided **guidance and emotional support** to a group of **six freshers** by helping them adjust to college life
- Helped in organizing **Orientation (Y20)** for **1000+** freshers

Academic Mentor MTH101/102 | Counselling Service IITK

Sep'20 - Jul'21

- Mentored students** who have faced difficulty in their freshman year **mathematics courses**
- Taken academic classes and **hall-level doubt clearing sessions** for first years

Secretary | Brain and Cognitive Society IITK

Aug'20 - Mar'21

- Hosted various **Journal Club Talk** events by researchers and PhD students on **NLP, cognitive studies** and **ML**
- Managed the **LinkedIn page** of the society as a part of the **Web Reach team**

Secretary | Quiz Club IITK

Jul'20 - Mar'21

- Organized and conducted **themed quizzes** for campus community

Relevant Coursework

Data Structures and Algorithms	Real Analysis and Multivariable Calculus	Linear Algebra & Ordinary DE
Fundamentals of Programming	Introduction to Economics	Manufacturing Processes
Engineering Graphics and Design	Introduction to Electrical Engineering	Fluid Dynamics
Thermodynamics	Nature & Properties of Materials	Dynamics

Technical Skills

- Programming Languages:** C, C++, JavaScript, Python, Java
- Libraries:** Tensorflow, Keras, Numpy, Matplotlib, Pandas, OpenCV, Scipy, Seaborn
- Software:** Fusion 360, MATLAB, AutoCAD, LAMMPS, OVITO
- Robotics:** ROS2, Gazebo, Rviz, Nav2
- Utilities and Tools:** Git, GitHub, L^AT_EX, VS Code

Extra-Curricular Activities

- Volunteer, Raktarpan IITK** (Blood Donation Awareness Club)
 - Volunteered in spreading awareness and busting misconceptions regarding **Blood Donation** and related topics
 - Collaborated with **Fine Arts Club, IITK** and **organized an art competition** to promote Blood Donation
- Maintained an art-blog of **digital art illustrations** made on **Procreate**; collaborated with **Music Club IITK** to create artistic covers
- Ranked among the **Top 16 players** in **IITK Scrabble League**; participated in **Inter IIT Scrabble League 2020**
- Worked under **Photography Club** and **Film Club** in **Galaxy'20**, the inter hall Cultural Championship
- Assisted the Senior Executive in activities pertaining to **Public Relations** in **Udghosh'19**, the annual sports fest of IITK

May'20 - Mar'21

Sep'19