

# Astha Bhatiwara

2nd Year Undergraduate  
Department of Electrical Engineering

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## Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2023	B.Tech	Indian Institute of Technology, Kharagpur	8.66/10
2018	Higher Secondary Exam (XII)	Vidhya Bharti Senior Secondary School, Sikar	89%
2016	Secondary Exam(X)	Vidhya Bharti Senior Secondary School, Sikar	97.33%

## Scholastic Achievements

- Secured All India Rank 3245 among 0.2 million students in JEE Advanced Exam
- Received the **Academic Excellence Award** for exceptional academic performance in 2016-17 academic session.

## Key Projects

- Object Tracking Bot** (Dec 2019)  
Winter School of AI and Robotics, IIT Kharagpur.
  - Implemented the concepts of OpenCV to track and follow the colored circle. Used Instance Segmentation, Color Extraction, Contour Detection, Edge Detection and Shape Detection, and Moment Calculation to follow and track the object.
  - Built a Bot that follows a path made of shapes and detecting shapes on the path. If a particular shape or color is detected then it takes direction decision based on the given instruction from the Image Processing to follow the object.
  - Used Hough transformation for a better view, and used Color Segmentation and Erosion-Dilation for the removal of noises.
  - Used OpenCV in Python for the code completion, compilation and running of the Code and to visualise bot.
- Cartoonifying an Image using OpenCV-Python**
  - Implemented different algorithms for converting an image into a comic or cartoon using Computer vision technique.
  - Worked with Guassian pyramid, median-blur, bilateral filters, adaptive thresholding, enhancement and edge detection.
- Fourier Analysis and Frequency Response** (Oct 2020)  
Prof. Nirmalya Ghosh, Department of Electrical Engineering, Kharagpur.
  - Implemented code in MATLAB to verify Fourier Coefficients of a periodic signal using a passive network.
  - Analysed the Frequency response of a series R-L-C circuit for different damping coefficient using Fourier Block

## Competitions

- Represented MT hall of Residence in **OPEN IIT Olympiad** of Mathematics, organised by TSG, IIT Kharagpur.
- Won bronze medal in **INTER-IIT** volleyball championship amongst 10+ IITs, held at IIT Bhubaneswar.
- Participated in Street Play Event held at Spring Fest, IIT Kharagpur, secured an overall 6th position amongst 30+ participants.
- Participated in Inter Hall Sports event, won silver medal in Volleyball General Championship.

## Technical Skills

- Programming Skills:** C++, C, Python, HTML
- Softwares:** MATLAB, LTspice, Tina-TI, Solidworks, AutoCAD, Git, Jupyter Notebook
- Libraries and Modules:** NumPy, OpenCV, Matplotlib, DSP-py, Anaconda

## Relevant Courses

Data Structures and Algorithms Vector Calculus Transform Calculus Analog Electronic Circuits Electrical Machines	Image Processing Signal, Systems and Networks Differential Equations and Applications Measurements and Electronic Instruments Indian Psychology
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## Extra-Curricular Activities

- Actor at PRAVAH (**Dramatics Society**), successfully organised Fresher's and Annual Production (IIT Kharagpur).
- Represented IIT Kharagpur in Street Play Event (NUKKAD) in **IIM Bangalore's** cultural fest (UNMAAD)
- Participated in Computer Vision Winter Workshop organised by Technology Robotics Society, IIT Kharagpur, and implemented various algorithms and concepts of OpenCV in C++
- Participated in district level Kathak dance competition.