

# PRATHAMESH N BHAKTAN

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## Research Interests

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Mechanical Design, Additive Manufacturing system, Robot design, Generative Design

## Education

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**Indian Institute of Technology Roorkee**

Roorkee (Uttarakhand), India

B.Tech Mechanical Engineering, 3rd year | GPA:8.89/10

July 2019 – Present

**Bhartiya Vidya Bhavans (CBSE)**

Vadodara (Gujarat), India

Higher Secondary, Grade-12 Percentage: 93.4%

April 2017 – April 2019

**Bhartiya Vidya Bhavans (CBSE)**

Vadodara (Gujarat), India

Secondary, Grade-10 GPA: 10/10

April 2007 – March 2017

## Experience

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**Internship at Schaeffler India Inc. | Vadodara , India**

Jun. 2021 – Jul. 2021

- Analysed design of ball bearing to determine Stress generated , which would then be used by R&D department

## Projects

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**RMSE20- Formula Student Electric Vehicle | IIT Roorkee Motorsports**

Feb. 2020 – Present

- Worked on the design and analysis of Chassis, Accumulator container and other composite components of car.
- Determined torsional rigidity of Chassis coupled with CFRP floor closeouts
- The chassis was optimized w.r.t factors like Torsional rigidity, Impact strength, Weight etc
- Used generative design to design lightweight structural parts for optimal performance of race car.
- Designed Ergonomic Rigs to determine the best possible driver position and location of various car components.

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**Design of Cable-Driven Parallel Robot for Automated Construction | Supervisor: Prof. PM Pathak, IITR**

Dec 2020 - Present

- Responsible for complete Mechanical design of 3-d Concrete printer
- Designed Winch mechanism for winding cable.
- Carried out FEA analysis to choose the best Aluminium profile for the frame of the 3-D printer.
- Currently working on designing extruder for printer.

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**SUAS: Student Unmanned Aerial Systems | ArIES IIT Roorkee**

Nov. 2020 - Dec. 2020

- Fully autonomous drone to deliver packages to customers by dismounting an unmanned ground vehicle
- Was responsible for designing and analysing gimbal for stabilization camera for the drone.
- The gimbal was designed such that it could be 3-D printed

- Compared three simplified chassis models of Formula Student car for safety during a crash.
  - Explicit FE dynamic simulations were performed on simplified structures to understand the impact resistance of different structures.
  - Findings were used to design actual size Chassis with the best impact resistance.
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**TS Accumulator lift** | *IIT Roorkee Motorsports*

Jun. 2020 - Jul. 2020

- Designed a lifting mechanism to precisely mount the TS Accumulator ( 65kg) inside an electric FSAE car.
  - Free Body Diagrams of all the individual components were made corresponding to the maximum loading conditions and FEA analysis was carried on them.
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## Achievements

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- **Formula Bharat:** Secured an overall rank of 6.
  - Secured All India Rank **2732** among 150k candidates in JEE Advance 2019
  - Percentile of **99.36%** among 1.3 Million candidates in JEE Mains 2019
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## Technical Skills

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**Programming Languages:** C++, MATLAB

**Software Packages:** SolidWorks, ANSYS Mechanical , AutoCAD , PTC Creo

**Computer Graphics:** Adobe Illustrator , Adobe Premiere Pro

**Languages Known:** English (SRW), Hindi (SRW), Konkani (SO), Gujarati(SO), Marathi(SO)

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## Position of Responsibility

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**Structural Engineer** | *IIT Roorkee Motorsports*

- Responsible for Design , Analysis and Fabrication of Chassis and other structural parts of FS car of IITR

**Design Secretary** | *National Cadet Corps (3UK CTR NCC IIT Roorkee)*

- Leading a team of designers for designing NCC's Magazine and Website
- Organized various events of NCC for 400 cadets

**Joint Secretary** | *Artificial Intelligence and Electronics Society, IIT Roorkee*

- Leading a team of Mechanical Designers on various projects.
- Responsible for the mechanical design of various components of a drone and unmanned ground vehicle.

**Class Representative** | *3rd-Year Mechanical Engineering IIT Roorkee*

- Class Representative of 3rd-Year B.Tech Mechanical Engineering consisting of more than 130 students.
  - Responsible for communication between Professors of Mechanical Department and Third year B.Tech Mechanical students.
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## References

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**Dr. Indra Vir Singh**

Professor, MIED

IIT Roorkee

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**Dr. P.M. Pathak**

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