

# Ayush Gupta

SOPHOMORE · ROBOTICS ENTHUSIAST

Indian Institute Of Technology, Kanpur

☎ (+91) 888-7148-656 | ✉ 7ayushgupta@gmail.com | 📱 7ayushgupta | ayushgup@iitk.ac.in

## Education

### Indian Institute of Technology Kanpur

BACHELOR OF TECHNOLOGY, MECHANICAL ENGINEERING

- Cumulative Grade Point: 9.2/10.0

Kanpur, India

July 2017 - Present

## Research Experience

### Team Autonomous Underwater Vehicle, IITK

SOFTWARE TEAM MEMBER

- Implemented a novel preprocessing algorithm to formulate a robust underwater vision pipeline, for object detection in a modular fashion
- Coded parallel nodes running image processing algorithms using OpenCV on the ROS Framework
- Handled state-of-the art hardware, while preparing to participate in underwater robotics competitions, **NIOT-SAVE** and **Singapore SAUVC**

Prof. Mangal Kothari

May 2018 - Present

## Work Experience

### New York Office, IIT Kanpur

BACKEND SOFTWARE INTERN

- Worked on Scala with Akka-HTTP for scalable and concurrent multi threading using functional programming
- Documented and compiled the entire collection of backend Application Programming Interfaces using PostMan
- Fixed bugs in the Scala backend, and collaborated using Phabricator, while developing an upcoming social platform

Supervisor: Prof. Manindra Agrawal

May 2018 - July 2018

## Skills

<b>Robotics</b>	Robot Operating System, OpenCV, Arduino, Gazebo (Beginner), Scikit, MATLAB
<b>Web Development</b>	REST API, Express, Socket-IO, Bootstrap, HTML5, Mongo, Jekyll, Travis CI
<b>Programming</b>	Node.js, C++, Java, Python, Scala, Unity, Git
<b>Languages</b>	English, Hindi

## Selected Projects

### Team Humanoid, IITK

SOFTWARE TEAM MEMBER

- Worked on a Bipedal Prototype of the humanoid bot, capable of performing statically stable walking
- Implemented the MATLAB simulated **inverse kinematics walking algorithm** based on ZMP criteria on the actual robot using ROS
- Developed a Web Graphical User Interface for debugging and monitoring using ROS Web Bridge Server and JavaScript

Robotics Club, IIT Kanpur

Dec. 2017 - April 2018

### Chat-IITK

ESC101 ADVANCED TRACK COURSE PROJECT

- Designed and developed a chat application on NodeJS, Express, Socket-IO, and MongoDB
- Implemented real-time chat using Socket-IO with PassportJS for extensively implemented **authentication** and **cookie handling**
- Database management** implemented using MongoDB, and application deployed on Heroku's server

Mentored by: Prof. Puroshottam Kar

Spring 2018

### Microsoft Code Fun Do

HACKATHON PARTICIPANT

- The application generated summaries of the latest news based on the current trending hashtags on Twitter, using NLTK library and Azure
- Implemented the tweepy library which provided the hashtags as well as the tweets related to them
- Used Natural Language Processing to filter nouns and verbs, and rate words based on their frequency-inverse document frequency value

Academia Accelerator, Microsoft

March 2017

### The Ball Game

3D GAME DESIGNED AND DEVELOPED ON UNITY

- Developed a basic platform game on the Game Development Framework Unity using JavaScript, and C# in the 9th grade
- Followed online tutorials and implemented collisions and links in the Unity Game Engine, while developing the game

Code on Github

January 2014

## Honors & Achievements

2017 **Top 0.7% in country**, Joint Entrance Examination Advanced, **160,000 candidates**  
2017 **Top 0.001% in country**, Joint Entrance Examination Mains, **1.2 million candidates**  
2016 **Top 1% in country**, National Standard Examination in **Physics**  
2015 & 16 **Top 1% in country**, National Standard Examination in **Astronomy**

*India*

*India*

*India*

*India*

## Positions Of Responsibility

---

### IITK Consulting Group

*Student's Gymkhana*

MEMBER, TECHNICAL TEAM

*July 2018 - Present*

- Successfully prepared and delivered lecture to the campus community on introductory Machine Learning and Data Science
- Founding member of the Hobby Group, aiming to work on outsourced consulting projects, with emphasis on insights from collected data

### Robotics Club, IIT Kanpur

*Kanpur, India*

SECRETARY

*April 2018 - Present*

- Volunteered in organizing introductory workshops for interested freshman students across the year
- Managed the club website, prepared content for lectures and helped organising competitions for campus community

### Counselling Service, IIT Kanpur

*Kanpur, India*

ACADEMIC MENTOR AND STUDENT GUIDE

*April 2018 - Present*

- Assisted five freshmen students in adjusting to the college environment, providing guidance and emotional support
- Took campus level remedial classes for freshman year Mathematics, provided personal tutoring to academically weak students for their courses

## Coursework

---

\*: EXCEPTIONAL PERFORMANCE, o: ONGOING, !: NEXT SEMESTER, #: ONLINE AUDIT

- Multi-Variable Calculus
- Linear Algebra and Differential Equations
- Fundamentals Of Computing (\*)
- Introduction to Economics
- Partial Differential Equations (o)
- Autonomous Navigation (!)
- Vision Intelligence and Machine Learning, University Of Pennsylvavnia, edX Courseware (#)(o)