Ayush **Gupta**

Sophomore · Robotics Enthusiast

Indian Institute Of Technology, Kanpur

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Education

Indian Institute of Technology Kanpur — *Kanpur, India*

Bachelor Of Technology, Mechanical Engineering — *July 2017 - Present*

- Cumulative Grade Point: 9.2/10.0

Research Experience

Team Autonomous Underwater Vehicle, IITK — *Prof. Mangal Kothari*

Software Team Member — *May 2018 - Present*

- 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**

Team Humanoid, IITK — *Robotics Club, IIT Kanpur*

Software Team Member — *Dec. 2017 - April 2018*

- 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

Work Experience

New York Office, IIT Kanpur — *Supervisor: Prof. Manindra Agrawal*

Backend Software Intern — *May 2018 - July 2018*

- 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

Skills

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

Selected Projects

Chat-IITK — *Mentored by: Prof. Puroshottam Kar*

ESC101 Advanced Track Course Project — *Spring 2018*

- 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

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 Pennsylavnia, edX Courseware **(#)(o)**