Vibhor Aggarwal

Research fellow, Italian Institute of Technology, Genova, Italy

vibhorag24@gmail.com
(+39) 328-658-2811

Via La Spezia,10/8
Genova,Italy,16149

ACHIEVEMENT AND AWARDS

Proficiency Medal for the **best under graduate project** work in Mechanical Engineering department of IIT Kanpur from the batch of 2017
Ranjan Kumar Memorial Award for the **best socially relevant project** among all departments at IIT Kanpur from the batch of 2017
Ranked **3rd** in state and 914 nationally **among 1.4 million students** in JEE 2013
Ranked 103 in National level Science Talent Search Examination by Unified Council
Gold Medal in National Mathematics Olympiad conducted by AISMTA,2013

EDUCATION

B.Tech, Major: Mechanical Engineering July, 2013 - June, 2017
Minor: Applied Mathematics
IIT Kanpur, India

Intermediate, Central Board of Secondary Education May, 2013
Army Public School, Dehradun, India

Matric, Central Board of Secondary Education May, 2011
St. Mary's Convent School, Dehradun, India

EXPERIENCE

Research Fellow, Dynamic Interaction Control Research Line Nov, 2017 - Present*
Supervisor: Dr. Daniele Pucci, Italian Institute of Technology, Genova, Italy

- Defining and identifying the **transfer function** between the voltage applied to the motors and the torque of each joint of the humanoid robot iCub
- Implement the low level torque control framework on the joints of iCub using the identified transfer function

Graduate Engineer Trainee July, 2017 - Oct, 2017
Hero Motocorp Ltd, Haridwar, India

- Managed **Total productive Maintenance** for machinery equipment and quality related activities and completing operations pertaining to maintenance repair involving resource planning and in-process inspection
- Produced machined parts by programming, setting up, and operating a computer numerical control (CNC) machine; maintaining quality and safety standards

Intern, Mechanical Design Engineer May, 2016 - July, 2016
Grey Orange Robotics Pte. Ltd, Gurugram, India

- Worked on the Suspension system of a robot, which is a bi- directionally scalable material handling system for goods to man
- Optimized the assembly through introduction of trailing link in the Suspension system, and reduced the number of parts
- Studied the designing of structural features and material choice for the casting of Aluminum parts

* as on July 12, 2018

ACADEMIC PROJECTS

Robotic Exoskeleton Arm Aug, 2016 - April, 2017
Supervisor: Dr. Sumit Basu, Mechanical Engineering Dept,IIT Kanpur

- **Exoskeleton arm** that increases mobility and is easily controlled by voice using an Android app, Bluetooth module and arduino.
- Actuated using **Pneumatic Air Muscles**(PAM) made of Latex material,used as a woven shell and Polyethylene Terephthalate, used for loose weave working on the principle of proportional pressure pneumatics
- Simulated the non-linear model on Ansys, and tested it experimentally
- Structure of the project is made completely of Glass Fibre Reinforced Plastic resulting
- Helps people affected from **Cerebral Palsy** and old age arm weakness

Multiple Crop Planting Machine Jan, 2015 - April, 2015
Guide: Dr. V.K Jain, Mechanical Engineering Dept, IIT Kanpur

- Worked in a team of 7 members to design and fabricate a working model of crop planting machine
- Simulated the machine on Solidworks and Ansys, for functionality

CO-SCHOLASTIC PROJECT

Design and fabrication of two off-road vehicles Dec, 2013 - Jan, 2016
Supervisor: Dr. Avinash Kumar Agarwal, Mechanical Engineering Dept,IIT Kanpur

- Calculated and optimized the Suspension parameters for the vehicle on Lotus Suspension Simulation
- Designed the front hub of the vehicle on Solidworks and did its FEA and weight optimization on Ansys
- Developed a Mathematical model on MATLAB for the vehicle's Suspension system to calculate forces
- The project was awarded 4th position for its design among 44 national teams

TECHNICAL SKILLS

MATLAB,Solidworks,Ansys,Autodesk Inventor, Lotus Suspension Analysis, Abaqus FEA, C language

RELEVANT COURSES

Design for Manufacturing and Assembly	Fracture and Fatigue
Solar Energy Technology	Design of Machine Elements
Mechanics of Solids	Additive Manufacturing
Theory of Mechanisms and machine	Finite Element Methods
Organizational and administrative psychology	Mathematical Modelling
Mathematical Methods	Vibration and Control

MANAGERIAL POSITIONS

Team Captain April, 2015 - Jan, 2016
BAJA SAE, Institute Motorsports team

- Spearheaded a team of 25 members in design and fabrication of an All-terrain vehicle for Baja Student India 2016
- Laid the groundwork for IITK Motorsports to acquire the recognition of an institute team from 2016
- Contacted firms like Bosch, Fox suspensions, Wilwoods, Dassault Systems etc. thereby raising sponsorship

Student Guide July, 2014 - April, 2015
Counselling service, IIT Kanpur

- Mentored 6 freshmen of the batch 2014 in their smooth transition to life at IIT Kanpur
- Worked in a 130+ member, three-tier team to conduct various events throughout the year 2014-2015