

Vibhor Aggarwal

MSc. Student, Automotive Engineering at RWTH Aachen, Germany

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ACHIEVEMENT AND AWARDS **Best Under-Graduate project** in Mechanical Engineering department of IIT Kanpur in 2017
Ranjan Kumar Memorial Award for the **best socially relevant project** at IIT Kanpur in 2017
Ranked **3rd** in state and 914 nationally **among 1.4 million students** in JEE 2013
Gold Medal in National Mathematics Olympiad conducted by AISMTA, 2013

EDUCATION *M.Sc, Automotive Engineering* Sep, 2018 - Present
RWTH Aachen, Germany

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

EXPERIENCE *Student research assistant* May 2019 - Present
Institute of Automatic Control, RWTH Aachen

- Sensor fusion for Navigation and path planning of an Unmanned Aerial Vehicle

Research Fellow, Dynamic Interaction Control Nov 2017 - Aug 2018
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

- Designed suspension of a robot for bi-directionally scalable material handling
- Optimized the assembly through introduction of trailing link in the Suspension system, and reduced the number of parts

ACADEMIC PROJECTS	<i>Robotic Exoskeleton Arm</i>		Aug 2016 - April 2017
	Supervisor: Dr. Sumit Basu, IIT Kanpur, India		
	<ul style="list-style-type: none"> • 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 • Helps people affected from Cerebral Palsy and old age arm weakness 		
	<i>Multiple Crop Planting Machine</i>		Jan 2015 - April 2015
	Guide: Dr. V.K Jain, IIT Kanpur, India		
	<ul style="list-style-type: none"> • Designed and fabricated a working model of modular crop planting machine 		
CO-SCHOLASTIC PROJECT	<i>Design and fabrication of two off-road vehicles</i>		Dec 2013 - Jan 2016
	Supervisor: Dr. Avinash Kumar Agarwal, IIT Kanpur		
	<ul style="list-style-type: none"> • Calculated and optimized the Suspension parameters for the vehicle on “Lotus Suspension Simulation” • 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		
LANGUAGES	Native or Bilingual		English, Hindi
	Limited working		German
	Elementary		Italian
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		Tribology
POSITIONS HELD	<i>Team Captain</i>		April, 2015 - Jan, 2016
	BAJA SAE, Motorsports team of IIT Kanpur		
	<ul style="list-style-type: none"> • 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 		