SURAJ AGGARWAL (12ME30050)

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Academic Qualifications:

Examination	Score	Institute/School	University/Board	Year
Dual Degree (B.Tech + M.Tech), Mechanical Engineering	9.05/10 (upto 5th semester)	Indian Institute of Technology, Kharagpur, West Bengal	IIT Kharagpur	2012-17
Higher Secondary School Certificate Examination	88.77%	Bhopalwala Arya Sr. Sec. School, Sriganganagar, Rajasthan	RBSE	2010-11
High School Certificate Examination	94.00%	Bhopalwala Arya Sr. Sec. School, Sriganganagar, Rajasthan	RBSE	2008-09

Academic Distinctions:

- Awarded the Merit Certificate and Silver Medal for being in **Top 15 Student** in Class Xth Examination from **RBSE in 2009**. Also **Mathematics** 100/100 and **Science** 100/100
- Secured **All India Rank 2912** in IIT-JEE 2012, **All India Rank 9390** and State Rank 1296 in AIEEE 2012
- Got selected in the **3rd Delegation** from India as a participant of **"Japan-East Asia Network of Exchange for Students and Youths Programme-2010"** conducted by Japan International Cooperation Center for a period June 16-25, 2010. It include Experiencing Japanese culture, Home stay, Visits to local industrial facilities, Environmental study, Workshop.
- Completed the **Astronaut Training Simulation** with 'B' grade during **JENESYS-2010** at Japan Aerospace Exploration Agency (JAXA's), Tsukuba Space Center (TKSC).
- Secured 234th rank in National Level Science Talent Search Examination-2011 conducted by UNIFIED Council at State Level (2011).

Technical Projects:

Self-Driving Car (Autonomous Ground Vehicle)
Website: www.agv.iitkgp.ac.in — August 2013 - present

- **Description:** The project is aimed at transforming a Drive-by-Car into a fully autonomous vehicle capable of running on Indian roads without any human assistance. If successful, it will be India's first fully operational self-driving car.
- **Contribution:**
  - Designed Camera & Lidar mounting on the vehicle.
  - Study Fundamental to the design of an Ackerman steered reference to semi-autonomous ground vehicle.
  - Using chain linkage through motor that effectively performs trajectory or path tracking.

EKLAVYA 3.0 (Research Associate at Autonomous Ground Vehicle Group, IIT Kharagpur)
Website: www.agv.iitkgp.ac.in — September 2013-present

- **Description:** The project, a student's initiative is aimed at developing highly efficient and advanced autonomous ground vehicle cum robot to participate in IGVC-2014 held at USA. The vehicle has to cross a field, filled with randomly placed obstacles autonomously with a payload of 20 lbs.
- **Contribution:**
  - Decide the drive mechanism based on the problem faced in EKLAVYA 2.0
  - Design the Rough sketch and CAD model based on battery and payload hub, Laptop hub, Control switch base, Circuitry hub
  - Design the power transmission system from motor to wheel for easy working.
- The team has been ranked 9th in Advanced Auto-Nav Challenge out of 56 teams worldwide.

Positions of Responsibility:

- **Junior Engineering Researcher** at Autonomous Ground Vehicle Research Group (Team AGV), IIT Kharagpur which has been established with an aim to explore the extremes in the realm of mobile robotics. The immediate goal of the team is to develop India's first fully operational self-driving car. Developed a vehicle to participate in IGVC-2014 held in Oakland University, Michigan under the project Eklavya series as a Mechanical Team Member.

- Working as a **Student Mentor** under the Student Welfare Group, IIT Kharagpur the objective of which is to help the first years understand the various aspects of college life, and adapt accordingly. This programme ensures that the hindsight of the Mentor becomes the foresight of the Mentee.

Technical Skills:

- Software: Solid Works, AutoCAD, familiar with ANSYS, MATLAB (data analytics), Photoshop, Word, Power point
- Languages: C, C++, familiar with Python, HTML
- Platforms: Windows, Linux- Ubuntu

Interests:

- **Area of Interest**: Mechatronics and Flying robot, Mathematical Modelling, Computer Vision, Machine Learning, Thermodynamic, Microfluidics, Kinematics & Dynamics of Machine.
- **Independent Coursework:**
  - Object Oriented Programming & Data Structure in C/C++
  - Solar Energy
  - High Speed Rail Systems
  - Supply Chain and Logistics Fundamentals
  - Switching and Finite Automata
- **Sports**: Badminton, Athletics
- **Hobbies**: Dance, Chess

Extra-Curricular Activities:

- Part of the 4th position achiever team in **Nukkad Natak** at SpringFest-2014, IITKGP.
- Part of **inter-hall Athletics** 2012 in 400 m race (Men).
- Working as a PDS Tutor in **PDS Doubt Sessions** to help the student in their Programming and Data Structure course from August, 2013- Present
- Participated in Cultural Event **Dance** during JENESYS-2010 and CATC-2013
- Passed the **Certificate-C** (in May, 2014) & **Certificate-B** (in May, 2013) held by **1 (BEN) EME COY National Cadet Corps (NCC)** under the authority of Ministry of Defence, Government of India.
- Attend the **Cadet Annual Training Camp (CATC-2013)** at Air Force Station, Salua for 2 weeks in December.

References:

- Dr. Debashish Chakravarty (Associate Professor), Department of Mining Engineering, IIT Kharagpur
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- Vaibhav Lodhi (Phd Doctoral), Advance Technology Development Center, IIT Kharagpur
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- Aaditya Agrawal, Vodafone India, Mumbai, Maharashtra, India
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