AKSHAY MAHAJAN

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EDUCATION

CLEMSON UNIVERSITY **GREENVILLE, SC**
M.S Automotive Engineering ***2019-2021***

- **Technical electives:** Automotive Electronics Integration, Control System Engineering, System Integration.
- **Academic Projects:**
  - **Sensing system for distance sensing and object localization**
    - Worked on Arduino microcontroller for distance sensing and localization using ultrasonic sensors.
  - **Autonomous RC vehicle with adaptive cruise control and lane keeping**
    - Designed a lane-keeping assistant and adaptive cruise control (ACC) for an Autonomous vehicle using a Arduino microcontroller implementing PID controller and ultrasonic sensors.
  - **Structural analysis using MATLAB**
    - Using MATLAB. analyzed the structural deformation of a spaceframe chassis and suggested improvements to increase stiffness.
  - **Simulation of powertrain model using Simulink**
    - Developed a powertrain model on Simulink and considering regeneration and analyzed battery energy consumption for various drive cycles for a Tesla Model 3.
  - **Simulation of Vehicle dynamics model using Simulink**
    - Developed a vehicle dynamics model on Simulink and considering tire slip predicted oversteer and understeer behavior of vehicle at various speeds for a Tesla Model 3.

MAHARASHTRA INSTITUTE OF TECHNOLOGY **PUNE**
B.E Mechanical Engineering ***June 2017***

- **Relevant subjects**: Design of Machine Elements, Theory of Machines, Mechatronics, Industrial Engineering, Operation Research and Reliability Engineering
- **Capstone Project on structural optimization using ANSYS**:
  - Titled "Design and Development of Solar Tracking Mechanism using Ganged Heliostats". The efficiency of a existing solar tracking mechanism was increased by 20% with the use of optimized components for heliostat mounts. Optimization was done using **FEA performed in ANSYS**.

PROJECTS AND EXTRA-CURRICULAR

PIRANHA RACING BAJA TEAM **PUNE**
Vehicle Dynamics and Handling ***Feb 2014 – Mar 2017***

- Developed analytical model of the steering system to calculate and predict the oversteer and understeer behavior of the vehicle for different loading conditions.
- Optimized damping ratio of the suspension system to balance driver comfort and handling performance.
- Simulated steering system on Lotus Suspension to minimize bump steer and steering effort.
- Determined vehicle dimensions based on placement of CG for achieving a 20% smaller turning cirle radius.
- Designed a composite steering gearbox (rack and pinion) to obtain 30% weight reduction.
- Designed the wheel assembly components like steering upright and wheel hubs using **Solidworks**.
- Optimized the weight of the system using **ANSYS** resulting in a weight reduction of 50% in a time of 3 years.
- Worked with the costing team to prepare detailed cost reports and won 1st Runner up.
- The team won the 2nd Runner Up at the national level event at Buddha International Circuit.

Team Captain ***Mar 2016 - Mar 2017***

- Led a 25-member motorsport team of MIT Pune as a technical head and the team manager.
- Participated in 2 National level BAJA events where the team won: 1st Business Presentation, 3rd Suspension.
- Significantly changed the suspension and powertrain system design philosphy resulting in multiple awards in dynamic events.
- Setup a new internship-based induction process for freshman members for effective utilization of the workforce.

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EXPERIENCE

TATA TECHNOLOGIES PVT.LTD. **PUNE**
Design Engineer – Body Engineering Jaguar Land Rover ODEC ***Mar 2018 – June 2019***

- Designed the Hood and Fender sub-sub systems using the surface of two-vehicle programs with the Exterior team. Delivered complete design solutions, considering stamping feasibility for sheet metal components.
- Worked on packaging an emergency collapsible Hood hinge mechanism aimed to facilitate effective deployment of airbags for pedestrian safety. Used tools like **CATIA V5** and TCe Visualization for the same.
- Developed modular vehicle master sections that reduced the initial CAD data generation time by 60%.

PENTA DESIGNER PVT.LTD **PUNE**
Design Intern – Automation Department ***Oct 2017 - Mar 2018***

- Worked with the on-site automation design team at ThyssenKrupp System Engineering, Pimpri on the design of assembly line for Jeep Compass transmission assembly using designing tools like **Solidedge** and **UG NX**.
- Designed a line transfer robotic workstation aimed to pick up, reorient and place the gearbox from one assembly line to the other. Designed a lifter machine for the transfer of pallet on the multi-level conveyor.
- Designed a sealant dispensing workstation with mounting fixture and checking camera for accurate dispensing of the sealant bead. Designed pneumatically assisted tackles considering the golden zone of human operations.
- Implemented principles of GD & T for the creation of part, manufacturing, and assembly in 2D drawings.

SOFTWARE SKILLS: MATLAB, Simulink, CATIA V5, ANSYS, MS Word, MS Excel, Solidworks.