Jaideep Singh Chavan

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Education

- **Michigan Technological University** — Michigan
  Master of Science in Mechanical Engineering; GPA: 3.8
- **Chalmers University of Technology** — Online
  Micromasters in Emerging Automotive Technologies
- **Birla Institute of Technology and Science, Pilani** — India
  Dual Major: MSc. Physics + BE. Mechanical Eng; Major GPA: 8.65/10.0

Professional & Technical Skills

- Matlab, Simulink
- Inventor, Solidworks, NX
- ANSYS, Abaqus, ANSA
- C/C++, Python
- DFMA, GD&T Y14.5
- Hardware Integration
- Testing & Validation
- Prototyping

Experience

- **Bumblebee Spaces** — San Francisco, CA
  Staff Hardware Engineer & Systems Architect — *Jan 2019 - Present*
  - Leading Concept-Production development of Electromechanical & Robotic systems to create intelligent living spaces.
  - Created revised hardware architecture using various sensors and actuation devices for improved safety & reliability.
  - Developed verification and validation plans, identified relevant test standards for certification testing to obtain FCC, CE, UL and RoHS certifications for the product.
- **Engineering Learning Center, Michigan Tech** — Houghton, MI
  Graduate Teaching Assistant - ELC, MEEM — *Aug 2018 - Dec 2018*
  - GTA at the ELC teaching Statics, Dynamics, & Mechanics of Materials to 900+ students in Mechanical Engineering.
- **GreyOrange Robotics** — Gurgaon, India
  Mechanical Design & Integration Engineer, R&D — *Oct 2015 - Dec 2017*
  - Collaborated with six multi-disciplinary teams to lead ***design & integration of three versions*** of autonomous Goods-to-Person robots, from ***concept-to-production:*** Architecture, Design, Production, Validation & Certification.
  - Designed, Integrated & Released ***over 70%*** of all electro-mechanical systems using several materials & manufacturing processes: Chassis & Load Structures, Powertrains, Gearboxes, Harness & Enclosures, Test Setups.
  - Responsible for ***sensor selection, architecture and integration*** of all electromechanical and hardware systems (Lidar, Camera, Depth, ODS, Proximity, IR, safety, IMU, Powertrains, Battery Systems, Enclosures, Harness etc)
  - Generated Control Strategies, performed ***analysis & mathematical modeling*** of all systems of the BUTLER robot.
  - Designed and built an improvised Inertia Dynamometer for motor selection, testing & validation, up to 2.5kW capacity.
  - Supported production build events, conducted cross-functional design reviews and Root Cause Analyses. ***Influenced design decisions*** to improve manufacturability, assembly, serviceability, and reliability.
  - ***Worked with 30+ suppliers***, communicated requirements, supported supplier development, and evaluation.
  - Led work on ***system reliability testing*** and successfully obtained ***CE certification***. Led validation tests such as ALT, HALT, EMI/EMC (ISO 7637-2), Environmental tests (IEC 60068-2-1A/2B/30/64) in collaboration with ARAI.
  - Undertook mentorship and growth responsibility of two full-time employees and four graduate interns in the team.
- **Fiat India Automobiles Pvt Ltd** — Pune, India
  Manufacturing Technology - Trainee — *2015 - Oct 2015*
  - Completed three-month GET training program in Engine, Transmission, BIW, Paint, Car Assembly, and SCM Divisions.
  - Worked on production line building & installation for temporarily relocating Fiat Punto Body-in-White (BIW) plant.
- **Fiat Chrysler Asia-Pacific Technology Center** — Pune, India
  CAE Engineer - Intern, R&D — *Jun 2014 - 2015*
  - ***Developed analytical models*** to accurately predict Minimum Door Closing Velocity for automotive swing doors.
  - Validated results from CAE simulations. Improved simulation computation time by ***40%*** & accuracy by ***12%.***
  - Created mathematical models to design a **non-linear damper** for resolving spare-wheel rattling in Fiat- Avventura.
  - Published results of the study in SAE World Congress-2016.

Academic Projects

- **HEV Modeling & Testing:** Designed Series/Parallel HEVs in Simulink to perform tests using standard Drive Cycles.
  - Developed ***Model Based designs*** of Automotive Systems in Simulink for Lateral, Longitudinal and Vertical control.
  - Conducted sensitivity analysis for impact of downsizing, mass, drag & rolling resistance reduction on Fuel Economy.
  - Devised ***Control Strategies*** for Torque Blending and Regenerative Braking in various operating modes of an ***HEV.***
  - Performed Road Load Measurement using Coastdown Testing (SAE J1263), used NI cDAQ, OBD-II & LabVIEW.
- **Li-Ion Battery Modeling:** Designed a Li-ion cell model in Simulink to determine capacity & life in various applications.
  - Developed an ***equivalent circuit model*** to study aging mechanisms with several current, temperature and life profiles. Designed a BEV model in Simulink to perform Energy Consumption tests as per ***SAE J1634.***
  - Developed an ***equivalent circuit model*** in simulink, to analyze aging mechanisms, capacity fade & range reduction.
- **Modular Vehicle Design:** Developed & Presented a novel approach for ***extensive modularization of an automobile*** using efficient modular design practices. Estimated gains & effects on weight, strength, fuel economy and performance.
- **SAE India Projects:** Led a team of 25 to design and build ***three university SAE collegiate competition vehicles*** as the Head of Design and Team Captain for: SAE India BAJA '15, SAE efficycle '13, and National Karting Championship '13.
  - Led Integration, Designed Chassis, Suspension & Steering Systems, evaluated Structural and Dynamic performance.

Publications

- Paper Publication at ***2016 SAE World Congress and Exhibition,*** SAE International (16M-0028/2016-01-0434). Roshan N, Jaideep S., **Evaluation of Minimum Door Closing Velocity Using Analytical Approach.**

Honors & Achievements

- Recipient of the prestigious ***J. N. Tata scholarship***, awarded $21,500 for pursuing Masters' in Mechanical Engineering.
- Rated as a ***"Champion"***, the highest rating, in all performance appraisal reviews at GreyOrange India.
- Presented with ***"The Rising Star"*** award by the CEO of GreyOrange, for remarkable contribution to the organization.
- Awardee of the renowned ***INSPIRE Scholarship***, received $8500 from Dept. of Science & Technology, Govt. of India.
- Won ***"Certificate of Excellence"*** & over $6500 in cumulative awards for designing, fabricating, racing & winning against 250+ teams in RC prototype Race Car competitions at: IIT-Bombay, IIT-Kanpur, IIT-Kharagpur, and BITS-Pilani & more.