

Rajasekar Dhanasekar

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Mechanical Engineer | Product Design and Development | Project Management

Education

University of Toronto – ON, Canada Sept'19 - Present

Master of Engineering (MEng) – Mechanical and Industrial Engineering

Emphasis – Major in Advanced Manufacturing & ELITE | Minor in Forensic Engineering CGPA – 4.0/4.0

Courses: Operations and Production Management for Manufacturing and Services, Management Consulting for Engineers, Product Design, Applied CFD, Life Cycle Engineering, Advanced Manufacturing, Collision Reconstruction, Forensic Engineering and Supply Chain Management

Anna University – Chennai, India Aug'13 – May'17

Bachelor of Engineering (BEng) – Mechanical Engineering

CGPA – 9.05/10

Professional Experience

Chief Mechanical Engineer Nov'19 – Present

University of Toronto Hyperloop Team (UTHT), Toronto

- Leading the design of structures, braking, and propulsion sub-system of the Hyperloop Pod.
- Management of the design and manufacturing process for on-time delivery and to maintain under budget.

Store Supervisor – Key Holder – Part Time Sept'19 - Present

Rexall Pharmacy Group Ltd.

- Manage and supervise a team of people to perform tasks designated for the shift.
- Responsible for opening & closing the store, accounting the safe and cash registers, customer handling, changing product planograms, placing purchase orders, performing RTVs and adhering the store to marketing and promotional programs for each week.

Management Consultant Sept'20 – Dec'20

PwC Canada

- Developed a Target Operating Model for a Mid to Luxury Automotive Car Manufacturer to tackle emerging technologies and effects of COVID-19.
- Studied market of EVs, performed product positioning by benchmarking and competitor analysis, proposed changes in customer experience considering effects of COVID-19 and provided risk mitigation plans.

Mechanical Design Engineer – Product Development and Engineering June'17 – June'19

Axles India Limited – Sriperumbudur, Chennai, India

- Design, Verification, and Validation of Rear Axle Housings of HCVs and LCVs.
- Optimized existing design by designing for modularity and by reducing material cost, material stock, machining time, and rework percentage which saved around 2.2 million CAD.
- Experience in processing RFQ, Design Review, Design Verification, Preparing DFMEA, Manufacturing Feasibility Study, APQP timing plan and documentation as per IATF 16949 standards
- Reduced lead time for design release by 35% and a significant decrease in design errors by introducing drawing automation and implementing SOLIDWORKS PDM.

Product Engineer – Team Lead Mar'15 – Feb'17

SAE Baja Team – Sri Sai Ram Institute of Technology

- Led a team of 25 engineers in the design and development of an ATV as per SAE standards for 2 years.
- Designed and Analyzed the ATV using CATIA and ANSYS, performed DFMEA, risk mitigation, collaborated with marketing team to develop sponsorship of around \$10,000, organized weekly touchpoints with sponsors and faculty coordinators,

Skills

Software	- SOLIDWORKS, CATIA, NX, AutoCAD, Fusion 360, Creo Parametric, ANSYS, Nastran, Fluent, Python, C++, MATLAB, Office 365, and Adobe Photoshop.
Technical	- DFM, DFA, DFE, DFMEA, DVP, GD&T, 2D Drafting, CFD, FEA, Product Design, LCA, and Design of Experiments.
Managerial	- Project Management, Life Cycle Engineering, Management Consulting, Product Development, Operations Management, Supply Chain Management, DMAIC, and Kaizen.

Projects

Design and Development of PingGO	2020
<ul style="list-style-type: none">Led a team of 5 engineers into product development and engineering of a Ping Pong Launcher.Performed a complete product design cycle from capturing VOC, converting requirement to functional performance, FMEA, PFD, Design of Experiments and complete design and mathematical model for the launcher.	
Reconstruction of Motor Vehicle Collision on the Skyway Bridge, Hamilton	2020
<ul style="list-style-type: none">Studied the collision between a Honda Civic and Jeep Liberty based on the collected evidence, tyres marks, post collision positions, and debris.Reconstructed the collision using basic momentum theory, application of crush and energy, data from air bag module and other sensors of ECU.	
Improving the Aerodynamic Performance of Rally Cars using Superhydrophobic Surfaces	2020
<ul style="list-style-type: none">Devised a method to coat superhydrophobic materials to increase the contact angle on a rally car surface to retain its aerodynamics performance by resisting dust accumulation, water, and air-surface resistance.Performed CFD on the rally car surface to understand the effects of rally car with and without dirt.	
Life Cycle Assessment of XLERATOR Hand Dryer	2019
<ul style="list-style-type: none">Evaluated the environmental impact of hand dryers at various stages of its life by performing an LCA.Provided analysis on comparing the environmental benefits of installing hand dryers over tissue papers.	
Design and Performance Validation of Vapour Absorption Solar Air Conditioning System	2017
<ul style="list-style-type: none">Designed a single effect 1KW, Ammonia-Water Absorption System with Evacuated tube solar collector.Paper published in IJFRCSE, November 2017 [ISSN: 2454-4248] (Page 115-119).	
Study of Mechanical Properties of Vetiver Reinforced Vinyl-Ester Polymer Composite	2016
<ul style="list-style-type: none">Instrumental in using this composite for the ATV as panels which helped in reducing the weight of the car by 2.45%.Awarded the best project in the Mini Project Expo 2016 conducted by Sri Sairam Inst. Of Tech	

Certificates

(CSWP) Certified SOLIDWORKS Professional – Mechanical Design Dassault Systems	2021
Professional in Product Design and Analysis CADD Center	2016
Course on Creo Parametric CADD Center	2016

Additional Activities

Vice President - Events Indian Graduate Student Association University of Toronto	
<ul style="list-style-type: none">Organize volunteers and manage work for the events by IGSA-UofT.Recent events include Alumni Connect, Coffee Hour, Winter Social, Aaja Nachle	
Student Secretary Mechanical Engineering Department Sri Sairam Institute of Technology	
<ul style="list-style-type: none">Organized technical symposiums, tier events, and worked in the improvement of student facilities.Addressing student needs with the management and participated in development of department.	
Chairperson SAE India Collegiate Club Sri Sairam Institute of Technology	
<ul style="list-style-type: none">Responsible for representing the college in SAE India events and make sure we adhere to the regulations.Actively brought in SAE Workshops and organized them within the college.	
