CURRICULUM VITAE - KSHITIJ TRIPATHI

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EDUCATION

MSc Thermal Power and Fluid Engineering, University of Manchester — Incoming Sept 2022
B. Tech in Mechanical Engineering, CGPA: 7.65/10, Delhi Technological University — Grad. May 2022
Mount St. Mary's School, New Delhi, 95%, Higher Senior Secondary Certificate (CBSE) — Grad. June 2018

WORK EXPERIENCE

Space Renaissance Initiative: *June 2021 - July 2021*

Robotics and Hardware Intern

- Developed method of transmitting power from electric motor to translational motion with damping system for shocks and tolerance within given spatial constraint
- Modelled Darrieus Vertical Axis Wind Turbine design for kinematic analyses using ANSYS rigid dynamics

Shakti Pulley Manufacturing Company: *December 2020-January 2021*

Mechanical Engineering Intern

- Assisted in manufacturing operations of pulleys and mechanical couplings and examined standard operating procedures with an evaluation of existing design methodology of components using finite element analysis modelling and simulations.
- Introduced Solidworks PDM for ease of material inventory management, and introduced Gantt Charts for assembly level work in the factory

PROJECTS

Formula Student - Team Defianz Racing: *Sept. 2018 – Mar. 2020*

Powertrain Lead, Cost Lead, Performance Manager, Electronics Lead, Project Advisor: Prof. Qasim Murtaza

- Led the university's Formula Student team - which competes in the largest project management and engineering design competition around the globe by fabricating formula one-style vehicles from the ground-up.
- Ranked Second Best Asian Team at Formula Student Czech 2020 and Best Indian team for Formula Student 2019 season.
- Worked on optimization and remodelled FSAE intake and exhaust manifold systems using CFD on StarCCM+ and Ricardo; converted FSAE nozzle from venturi design to deLaval using pressure plots.
- Eliminated the need for fuel tank baffles, by simulating fuel sloshing under running conditions in cfd and optimizing spatial constraints.
- Spearheaded cost and manufacturing analysis and scrutinized various decisions undergone while making a Formula Student prototype vehicle and devised a method to evaluate the investment of resources in manufacturing based on the Westinghouse system of rating.
- Built wiring for the vehicle including the ECU, crucial and auxiliary sensors and tuned a custom ECU to introduce launch and traction control, and overviewed work on telemetry and the data acquisition system from a managerial role

Investigation into Multi-Metal Usage in Grid-Stiffened Structures: *Sep 2021- May 2022*

Undergraduate Researcher, Thesis Advisor: Prof. Vikas Rastogi

- Observe the response behaviour of such grid stiffened structures under vertical compression tests and seeks to find buckling and bending characteristics on both static and structural analyses done on ANSYS mechanical workbench.
- Modelled thermal constraints on isogrid elements to gauge effect of using titanium and nickel based alloys in applications with thermal differential.
- Multiple metal Orthogird Implementation on Trans-sonic/Supersonic Nozzle using fluid structure interaction(FSI) research using CFD coupling solvers on ANSYS Fluent and MATLAB

MeitY Motor Controller for Electric Vehicle Project: *May 2021- August 2021*

Project Researcher, Project Advisor: Prof. Mini Sreejeth

- Computed and supervised thermal analysis on heat sinks applied on MOSFETs and comparison of FEA results between Indian and Chinese technologies under the Ministry of Electronics and Information Technology aided R&D Project on Motor Controller for Electric Vehicles, DTU.

- Used thermal CFD solvers to simulate convection heat transfer characteristics of heat sinks in Neighbourhood Electric Vehicles.

PUBLICATIONS

- Kshitij Tripathi, Kunal Kukreja and AK Madan, Evolution in Manufacturing of Grid Stiffened Structures through CAM and Additive Techniques, International Journal of Advanced Research in Engineering and Technology (IJARET), 12(4), 2021, pp. 217-225. doi: 10.34218/IJARET.12.4.2021.025
- Tripathi K., Kukreja K., Gupta N. (2022) Fabrication of Isogrids by Conventional and Unconventional Techniques: A Comparative Review Study. In: Agrawal R., Jain J.K., Yadav V.S., Manupati V.K., Varela L. (eds) Recent Advances in Industrial Production. Lecture Notes in Mechanical Engineering. Springer, Singapore. doi.org/10.1007/978-981-16-5281-3_41
- Kshitij Tripathi, Kunal Kukreja and Vikas Rastogi, Static analysis of multi-metal usage in grid stiffened structures, Advances in Transdisciplinary Engineering (ATDE), 2022 [Accepted]
- Kshitij Tripathi, Aakash Ghosh, Aryan, Mini Sreejeth and S. Indu, Thermal Study of MOSFET heat sinks for Motor Controller in Neighborhood Electric Vehicles (NEV), International Journal of Electric and Hybrid Vehicles,2022 [Accepted]

TECHNICAL COMPETENCIES

SolidWorks, AutoDesk Fusion 360, ANSYS(Mechanical, Fluent, ICEPAK), Siemens StarCCM+, MATLAB, Python, Siemens FEMAP, RICARDO WAVE 1-D, C++, OpenFOAM, MS-Excel, MS-Word, MS-Powerpoint

CERTIFICATIONS AND ACCOMPLISHMENTS

Neural Networks and Deep learning, DeepLearning.AI	July 2021
Finite Element Method For Problems In Physics, University of Michigan	May 2021
Introduction To Self Driving Cars, University of Michigan	Apr 2021
2-course graduate-level certification in Python and Data Structures	Apr 2020
Secured 113/120 in TOEFL iBT and 315/340 in GRE	Oct 2021
Excel Skills For Business: Essentials, Macquarie University	Nov 2021
Mastering Programming with MATLAB, Vanderbilt University	Nov 2021

ADDITIONAL DETAILS

- Worked as a volunteer for the Logistics team in Engifest(Cultural Fest) of our college
- Participated in Invictus(Tech Fest) as a volunteer of our college's Society of Automobile Engineers (SAE) chapter
- Participated and reached around 2 of Flipkart GRID 2.0, Robotics Challenge
- Invited as a delegate to Droom Conference 2021