

SHIVANSH MITTAL

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EDUCATION

Nanyang Technological University, Singapore

AUG 2019 – MAY 2023

Bachelor of Engineering, Mechanical Engineering: Honors (Distinction)

- Specialization: **Design Engineering**
- Relevant Coursework: Solid Mechanics & Vibrations, Fluid Mechanics, Machine Element Design, Thermodynamics & Heat Transfer, Computer-Aided Engineering, Machine Intelligence

SKILLS

Languages: Bilingual Proficiency in English and Hindi

Technical Skills: Computational Fluid Dynamics (CFD) : Siemens Star-CCM+, ANSYS Fluent

Computer Aided Design (CAD) : AutoCAD 2-D, Autodesk Inventor, SolidWorks, Siemens NX Unigraphics 12

Prototype Testing : DFM/DFA/QFD principles, 3-D Printing, Arduino Hardware and Programming (C++), Python

Manufacturing : GD&T, CNC Machining, Manual Machining Operations, BOM Development, Injection Moulding

Business Skills : Leadership, Consulting, Team-Building, Time Management, Emotional Intelligence, MS Office

Personal Interests: Running, Basketball, Anime, Comic Books, Political History, Music, Crypto Trading

RESEARCH PROJECT: RENEWABLE ENERGY

Nanyang Technological University, Singapore

JUL 2022 – PRESENT

Hydrodynamic performance optimization of horizontal Pinwheel and vertical Savonius tidal turbines using CFD

- Co-authored a CFD research article for publication in two prestigious journals such as IGEC-XV and GPPS.
- Led full-scale development of two Pinwheel and Savonius tidal turbine CFD models utilizing Siemens StarCCM+, including literature review, part design, meshing, and data analysis.
- Conducted research investigates power optimization of any rotors, propellers, and turbines under fluid loading in various orientations following a acting/resisting moment balancing method.

WORK EXPERIENCE

BW Offshore (Oil & Gas FPSO Vessels Operator)

MAY 2022 – AUG 2022

Mechanical Engineering Intern, Asset Engineering and Maintenance

- Gained in-depth knowledge of Oil and Gas FPSO industry, BWO's business model, sustainability challenges and Norwegian lifestyle through working three-weeks in Oslo and nine-weeks in Singapore.
- Proposed Green Ammonia FPSO vessels to promote decarbonization in energy sector through detailed analysis of production capabilities and design of topside general arrangement drawings utilizing AutoCAD 2D
- Strengthened fleet's safety and maintenance rating by 20% through evaluation of suitable ASME grades of damper and casing materials to assess dew point corrosion during dry operation in existing FPSO's heat exchanger system.
- Improved weight accuracy by over 18% for all equipment decks of a New Build turret system through analysis of vendor datasheets and 3-D Autodesk Inventor model.
- Digitized offshore crew's Stud Bolt tightening values manual with Microsoft Excel for JIS and DIN flanges.
- Enhanced practical experience by visiting topside oil production, offloading deck, turret, and mooring system of a New Build FPSO vessel at Keppel Shipyard.

Dyson Singapore (Home Appliances)

AUG 2021 – DEC 2021

Design Engineering Intern, RDD Haircare

- Engineered an automated rig assembly to predict mechanical fatigue in Dyson brush bristles for 500,000 cycles enabling 50% faster troubleshooting and validating lifecycle claims.
- Proposed rig mimics hand brushing action with a linearly actuating roller upon contact allowing position adjustment and bristle stress data analysis to alert potential deformation and failure through a mobile application.
- Created rig's CAD design with Siemens NX and breadboard circuit with Arduino Uno and Mega microcontrollers, S-load cell, limit switches, LCD display, and linear actuators.
- Advanced working knowledge of 3D printing and laser cutting with PLA, SLS, plywood and MDF.

- Gained practical experience in GD&T, machining operations, and fastening to meet assembly specifications.

Swire Shipping (Former China Navigation Company (CNCo) (Merchant Shipping) DEC 2020 – JAN 2021

Mechanical Engineering Intern, Sustainable Development

- Devised a sustainable engine fuels and container dunnage decarbonization company strategy for year 2025-2050.
- Established company's first fire safety manual, replacing hazardous materials (asbestos, PVCs) with sustainable alternatives (timber and composite polymers) during ship-breaking in overseas shipyards.

Nichefin Consulting (ESG Consulting Firm) MAY 2020 – OCT 2020

ESG Consulting Intern, Corporate Governance

- Conducted literature review for a research article along with Institute of Chartered Accountants of India (ICAI).
- Forecasted and analysed impact of Industry 4.0 on financial performance of the Indian manufacturing sector.

LEADERSHIP EXPERIENCE / CO-CURRICULAR ACTIVITIES

NTU ShARE (Student-Run Management Consultancy)

***President/Partner* JAN 2020 – JAN 2022**

- Boosted client acquisition and retention by 30% for three startups, I'm Friendly Co., Savour! and OnLive.
- Achieved 25% youth acquisition growth through B2C strategies for The Pine Garden, an artisan Chinese bakery.
- Spearheaded two Market Research projects on "Future of shared mobility" and "Autonomous driving's impact on automobile regulations" in Singapore, analyzing current landscape of public and private players.

Rotaract Club of NTU (Non-Profit Organisation)

***Director of Professional Development* JUN 2020 – JUN 2021**

- Chaired a 10-membered committee to enhance club members' professional skills by organizing a 4-part, 2-hour workshop series covering Personal Branding, Teamwork, Data Science, and Finance.
- Founded first-ever mentor-mentee program for Rotaract Club globally in partnership with Rotary Club of Tanglin, receiving District 3310 Bronze Award for Best Professional Development Project in 2021.

COMPETITIONS

Design Project (NTU MAE x Toyota Logistics, Japan)

***1st Runner-Up Prize; Leader* SEPT 2022 - NOV 2022**

- Managed a diverse team of Singaporean and Japanese students to create an end-to-end logistics system for Japan's future, utilizing innovative technology to address labour, economic and environmental challenges.
- Engineered the CAD model for the port-to-city maglev train network and bio-inspired drone for last-mile delivery.

International Students Joint Capstone Design Project (i-CAPS) Program

***Finalist, Team Leader, ProMask Sanitisation Device* FEB 2021 - AUG 2021**

- Headed a cross-cultural team to create a UV-C mask sanitization device for derma and pulmonary patients.
- Designed CAD with SolidWorks and developed breadboard circuit with Arduino, LEDs, sensors and displays.

SpareCare (Go-to financial literacy platform for Foreign Workers)

***Co-Founder, Semi-Finalist; NTUitive IdeasInc Challenge* JAN 2021 – JUN 2021**

- Launched a go-to financial literacy platform achieving positive \$200 cash flow within two months.
- Empowered 50+ Foreign Workers, from Indonesia and India to make informed personal finance decisions.
- Ceased operations due to strict COVID-19 restrictions enforced by Singaporean government in June 2021.

CDL-GCNS Young SDG Leaders SG Case Competition

***2nd Runner-Up Prize; Leader* MAR 2020 - JUL 2020**

- Analysed The China Navigation Company's, an international shipping service provider, sustainability efforts and devised strategies targeting decarbonization and human resources.
- Proposed transitioning to ammonia as primary fuel, introducing collapsible TEU and FEU shipping containers, and implementing a Virtual Integration Program to enhance employee code.