NISHANTH RAJKUMAR

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OBJECTIVE

I believe that the fruitful past academic, research, and hands-on experiences I have had, the present grooming I am going through, and a focused, determined and passionate approach towards the future are the main ingredients for success in my long-term goals. I aim to work on research-oriented organizations that utilize and help in honing my skills.

EDUCATION

VELLORE INSTITUTE OF TECHNOLOGY - CHENNAI, INDIA
Jul'18 – Apr'22 (expected)

UNDERGRADUATION – CGPA 8.36/10
Mechanical Engineer- School of Mechanical Engineering (SMEC)
(Primary focus on Designing and Simulation, Mechatronics and Artificial Intelligence)

MAHARISHI INTERNATIONAL RESIDENTIAL SCHOOL
Jun'04 – March'18

SCHOOL
Computer Science- CBSE
Computer Science, Physics, Maths, Chemistry

PROFESSIONAL EXPERIENCE

UNIVERSITY OF ALBERTA – CANADA
Starts by Jul'2021

Research Intern

- Familiarity with C/C++ programming, knowledge of control systems, familiarity with mathematical models of physical systems, hands-on skills for a health student conducting trials: Experience working with children and special patients, background knowledge in neuroscience and/or children's development.
- Supervised by Prof. Kim Adams director of Assistive Technology Lab, University of Alberta.

PROFESSIONAL INSPECTION CONSULTANCY, ASME AUTHORIZED, INDIA
May'21 – Present

Summer Research Intern

- Good hands on work experience and involves in Finite Element Analysis (FEA) as per ASME section VIII Div. Part 5 (Numerical analysis) of pressure vessel for Plastic collapse (Plastic Elastic analysis) and FE analysis for API 653 above ground storage tank including wind and seismic analysis.
- Supervised by Dr.Davidson Jebaseelan, Associate Professor of VIT University.
- Few publications have been done with the company's guidance

PRECIMECH COMPONENTS AND COMPANY CHENNAI, INDIA
Aug'19 - Feb'20

Research-Cum-Project Intern

- Various parts for an unmanned ground-vehicle are designed, engineered, manufactured and assembled with its required electronic sensors for agricultural uses.
- Different types of optimizations were done in order to remove unnecessary weights across the whole frame.
- Awarded as the best design engineer among all the other interns.

HI-TECH INDUSTRIES CHENNAI, INDIA
Jun'20 - Jul'20

Industrial Intern

- Undergone a technical internship on various machining processes using different milling centre's and also gained detailed knowledge of designing and analysis using CATIA and ANSYS.
- Gained a deep knowledge on analyzing different structures being manufactured.

ATOM ROBOTICS CHENNAI, INDIA Jan'19 - Present

Co-Founder and Team Lead

- An Intelligent Robotics and Satellite exploration team consisting of 50+ aspiring young minds.
- The team focuses on intelligent ground vehicles targeting IGVC, USA; Planetary Aerial System using VTOLS targeting IPAS, Mars society South Asia (MSSA); Satellites targeting Can-Sat, USA.
- Won more than 20 awards to date, can be seen in Team Website and Team Report.

RESEARCH EXPERIENCE

The Research Details are given in my portfolio (research).

1. **Generative Design Optimization and Analysis of Connecting Rod for Weight Reduction and performance enhancement**, iop conference proceedings: journal of physics – under review
2. **Numerical Analysis of above ground storage tanks with different settlement conditions**, Elsevier Journal Of Pressure Vessels And Piping - under review
3. **Computational Study Of Fire Water Storage Tanks Due To Seismic Loading,** Sesbt 2021 International Conference, iop conference proceedings: journal of physics – accepted
4. **Fault Diagnosis of an All Terrain Vehicle Gearbox System using Statistical Features and Advanced Classifier Methods,** Elsevier Journal of the International Measurement Confederation – under review
5. **A Performance Characteristics Review Of Mahua Biodiesel In Ci Engines,** Prime 2021 International Conference On Progressive Research In Industrial & Mechanical Engineering - accepted
6. **Numerical Analysis Of Composite Planetary Gear Set,** Elsevier Journal Of Computational Materials Science - ongoing

RESEARCH PROJECT UNDER MENTORSHIP

Supervisor: Prof. Davidson Jebaseelan, Associate Professor, School of mechanical engineering, VIT chennai

The project is offered by Indian Oil Corporation: A Study on the deformation (with and without plumbs) of Vertical Storage Tanks with 5^0-10^0 tilt due to sloshing under the Action of Near-Fault Earthquakes.

AREA OF EXPERTISE

Design and Simulation	Fusion360, SolidWorks, Catia, Ansys
Programming	C, C++, Python, Matlab and Simulink
Machine Learning	OpenCV, TensorFlow
Hardware	Arduino, Raspberry Pi, Drones, ESP, CNC
Linguistic knowledge	**Fluent**: English; **Intermediate**: German, Hindi; **Native**: Tamil
Soft Skills	Leadership, multi-tasking, Decision making

ACCOLADES AND RECOGNITION

4th Runner up of ATMOS'19: BITS Pilani, Law follower, Tech-Management Fest
Winner of Currents'20-NIT Trichy: Placed 1st in the event "Autonomous Line Follower".
Winner of Kurukshetra'20-College of engineering, Anna University: Placed 1st in "Robozest".
Placed in top 100 teams in the event Flipkart Grid 2.0: Placed as the 73rd team all over India in Round 1.

Best Concept Prize by Precimech Components and co.: Received a special award for designing the best fixture.
Further achievements with certificates can be seen here.

PROFESSIONAL PROJECTS

STRESS LINEARIZATION OF A PRESSURE VESSEL AND CFD STUDY DUE TO EXTERNAL WIND CONDITIONS

- A pressure vessel with different nozzles and flanges were designed according to their NPS (North American set of standard sizes for pipes).
- The pressure vessel was designed with a fixed and a sliding saddle. Different bending moments on the inside and outside of the supports were analyzed that occurs due to the internal pressure and wind pressure with a speed of (45 m/s).

DESIGN AND ANALYSIS OF SINGLE CLUTCH PLATE

- Different parts of single clutch plate such as pilot bearing, clutch plate, pressure plate clutch shaft and helical springs were designed and assembled.
- This assembly was analyzed with different stresses a better material was chosen in order to decrease the stresses across the clutch plate.

COMPUTATIONAL FLUID DYNAMIC STUDY OF OMEGA VTOL UAV – ATOM ROBOTICS

- An autonomous aerial planetary system designed for logistics and reconnaissance missions in the Mars environment by my team.
- Completely designed and tested from scratch considering the compatibility for flight in a Martian environment.
- A CFD study was done in order to find the critical or stalling angle of attack with the structural study to check the maximum stresses across different regions of the frame.

ABLUTION ASSIST FOR ELDERLY AND DISABLED

- Designed an advanced manual Rollator for elderly and disabled people, equipped with ArmRests and Cutouts, which will help them in their morning ablutions.
- The rollator can be pushed on to a lavatory and the water supply can be connected through a hose in the given slot under the seat.
- Nozzles are added according to a nozzle pipe size grades in order to supply a low-pressure water flow to high pressure flow.

Other personal and academic projects can be seen in portfolio (projects).

EXTRA CURRICULAR

President of ATOM Robotics, VIT Chennai

- An official team of VIT Chennai which conducts workshops, events and symposiums.

Member of National Service Scheme

- A public service program directed by the Government of India.
- As part of NSS, I had participated in and coordinated several social service activities benefitting various sections of the society and the environment.

Member of IEEE Robotics and Automation Society

- An active group coordinating member of IEEE-RAS.

Core Committee of team Vibrance'20

- Worked as part of a team in-charge of Hospitality Management.

ACKNOWLEDGEMENT

I, **Nishanth Rajkumar**, hereby affirm that the aforementioned statistics is true to my knowledge, as of June 30th, 2021. References are available on request.