Skills

New product development
Advanced

Design for manufacturing, modelling and analysis
Advanced

Motion control, FPGA, Control system
Advanced

Design of robots, mobility vehicles and drones
Intermediate

Interests

Program motion machineries

Freecad, Fusion360, LinuxCNC, Openfoam, Inventer, Solidworks, Solvespace, Blender, ROS, Elmer

Languages

English
C2

Hindi
C2

German
A2

Chetan PM

Research Engineer

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Summary

I am an electro-mechanical engineer deeply interested in advancing sustainable technologies and bio-inspired design through research and innovation. My experience spans autonomous systems, precision engineering, and control systems, with a focus on creating practical and environmentally conscious solutions.

Education

Vellore Institute Of Technology — **07/Aug/2013 - 24/Aug/2015**
Mechatronics engineering — Master Of Technology
GPA 6.1

Vidya Vikas Institute Of Engineering And Technology — **10/Jul/2005 - 20/Sep/2010**
Bachelor Of Engineering
Mechanical engineering
GPA 6.2

Work Experience

Redundant Mechatronic Lab — **08/Jan/2018 - present**
Research Engineer

- Designing and developing custom production machines and autonomous systems for diverse applications.
- Focused on integrating advanced control systems and reducing noise and vibration in industrial automation projects.

Relevant Projects

Spherical rolling robot — **04/Feb/2014 - 24/Jul/2014**
Omni-directional motion

- Developed a spherical robot as part of an academic project, exploring motion control techniques.

Ojas Formula Electric — **07/Oct/2014 - 30/Sep/2015**
University formula electric race team

- Contributed to the team by designing the powertrain and implementing electronic safety systems according to compliance.
- Participated in an international competition, where our team achieved commendable results in cost-performance metrics.

Insect robot flapping mechanism — **12/Feb/2015 - 30/Jul/2015**
Micro-air vehicle

- Modeled a pair of wings based on a giant butterfly called Goliath birdwing. The wing was a fibre rods reinforced poly urethane sheet design.

Awards

Unnati innovation seed fund award
State government of Karnataka
Feb 2019

A grant sum of 1.5 million rupees was awarded for my concept design of a CNC machine during a seed fund challenge.

Accelerator for technology development
Ministry of heavy industries India
May 2022

A grant of 4.88 million rupees was awarded to develop an indigenous constrictor for my conceptual design of the turning spindle.

Research and development

Desktop scale milling machine **01/Feb/2018 - 30/Jan/2019**
Open hardware desktop mill

- Worked on adapting open-access hardware designs to create a high-precision and efficient desktop milling machine.
- Implemented MESA FPGA and LinuxCNC, gaining experience in control systems and resource-efficient designs.

Development of porous graphite constrictor gas lubricated spindle **01/Dec/2021-23/Dec/2023** Bengaluru
Indigenous development of aerostatic bearing spindle

Development of Aerostatic Bearings for High-Precision Applications

- Contributed to the design and development of motion components using aerostatic bearing principles.
- Collaborated with CMTI India on prototyping and bringing the product to commercial space.

Table top 4 axis mill **19/Feb/2024-present**
Product development for commercial deployment

Development of a table top milling machine built out of tool steel.

- Designed the machine using shape & topology optimization for the desired dynamic characteristics of the machine.
- Collaborated with a team of manufacturing experts to machine and fabricate all the components and it is currently under testing phase.