

# Rajath Chandrashekar

New York, United States | [rajathch@buffalo.edu](mailto:rajathch@buffalo.edu) | +1 (716)-253-5088 |  
[linkedin.com/in/rajath-chandrashekar](https://www.linkedin.com/in/rajath-chandrashekar)

## Summary

---

Innovative Mechanical Design Engineer with 3+ years of experience in designing and testing complex mechanical systems, including aircraft and medical components. An expertise in the latest advancements in Robotics and AI with a Masters in Robotics. Seeking a challenging R&D Mechanical Design Engineer role .

## Experience

---

### Teaching Assistant, University at Buffalo Sept 2023 – Present

- Teaching Assistant in Computer vision, Digital Controls and Flight Dynamics class
- Conducted office hours, setting exam papers and assignments from time to time and Evaluating the students.
- As a course instructor, I have an expertise in kinematics and dynamics of robots, Transformations, Linear Algebra, and Control.

### Project Fellow, Mechanical Design Engineer, CMTI July 2019 - December 2022

- Planning, designing, manufacturing, procuring and assembling mechanical systems. Design and qualification of test beds used in aircraft parts testing.
- Worked as an R&D mechanical engineer in the design of pneumatic proportional valves from prototype to production to achieve linear control characteristics for medical industry applications.
- We extensively used AS9100 quality standards and other ISO standards for design practices and GD&T. Detail-oriented with proper documentation through BOM, ECR, product manuals, user manual preparation, and safety manual preparation according to OSHA standard.
- Worked on projects that included various combinations in hydraulics, pneumatics, high temperature, and vacuum.
- Procurement and vendor relations all the way through purchase ethics and best practices to meet deadlines and quality standards.
- Experience with Lathe, Mill, Bench drill, CNC machining, Sheet Metal Fabrication, Assembly and 3D printing.

### Apprentice Trainee, Mechanical Engineer, BEL March 2018 – Aug 2018

- Trained electrical and mechanical engineers in an interdisciplinary environment and collaborated in the innovative redesign of the structural components of the transformer, improving the durability by 15% through the integration of advanced materials.
- Contributed towards the design of transformer mechanical systems considering all the electrical needs.

## Projects (Lab)

---

### Learning-Based Controller Design for Humanoid Walking (UB) Feb 2023 – Present

- As a part of the culminating master's thesis, I am using Deep Reinforcement Learning to train a control policy to make humanoid robot called BRUCE and Unitree GO2 Dog.
- Through this project I have gained deep understanding of complexities of bipedal walking controller, and experience working on a real bipedal robot.
- Inverse Kinematics, Forward Kinematics using DH and ET methods, State Estimation using Complimentary and Kalman Filters, Low level motion control joint PID Control tuning.

## **Design of Swung Up controller for an Inverted pendulum (UB)**

**March 2023 – April 2023**

- Swing-up controller was designed using energy methods and tested under simulation in MATLAB and SIMULINK.
- A model of the inverted pendulum was created based on Lagrange methods to create a state space representation of the pendulum and further the system was linearized.
- Robot Control and Dynamics were practically explored.

## **Projects (Industry)**

### **Design and Development Hydraulic Second Line Test Rig (CMTI)**

**July 2019 – Dec 2022**

- Involved from end to end: From Part-design, manufacturing and component selection to procurement and assembly of hydraulic and mechanical systems and sensor integration and selection.
- Preparing functional test procedures and qualification documents, functional and design verification the rigs.
- Used F.E.A methods to analyze structural frames.
- Created drawings using GD&T using ANSI Y-14.5, by keeping into account various manufacturing processes.
- Foremost in vendor development activities for creating a reliable supply chain to meet deadlines and quality needs (AS9100 and ISO9001).

### **Design and Development of Pneumatic Proportional Valve for Ventilator (CMTI)**

**March 2021 – Sept 2022**

- Created an R&D road-map for the project and successfully executed it over the span of the project.
- Control system behavior predictive Modeling of mechanical system and solenoid coil from first principal equations.
- Directly applying concepts from research papers by implementing a genetic algorithm-based design optimization to optimize the control cone geometry of the valve.
- The project was a stage for rewarding interdisciplinary collaboration and product design along with cradle to grave ownership, including Testing of the valve using custom test rig for design verification purpose.
- Initial proof-of-concept of the valve using additive manufacturing and final proof-of-concept of the valve using machining process.

### **Design of Testing setup for Fuel Actuator (CMTI)**

**Nov 2019 – Dec 2021**

- Complete design of an high temperature fuel system with vacuum chamber and induction coil heater to handle JetA1 fuel.
- Design of hydraulic system circuit to handle Jet A1 fuel both at high (270 °C) and low (-10 °C) temperatures.
- Created a P.I.D Controller for accurate temperature profiling of the working fluid required for testing.
- Filed a Patent for this process, Patent No. 202141005463.

## **Education**

**University at Buffalo, NY**

**Master of Science in Robotics, 2025 (GPA: 3.9)**

**Visvesvaraya Technological University, INDIA**

**Bachelor's in Mechanical Engineering, 2017 (GPA: 4)**

## **Skills**

**Software:** CATIA, SOLIDWORKS, AUTOCAD, MATLAB/SIMULINK, ANSYS Mechanical, CFD, ROS-1, ROS-2, MuJoCo, DRAKE

**Expertise:** Control Systems, Python, C++ , Analytical Problem Solving, Embedded C, FEA, GD&T, RL, PPO, Real Robot Experience, Sheet Metal, Machining, 3D Printing and Still counting ....