



Mukundan Chariar

<https://www.linkedin.com/in/mukundan-chariar1>
 mukundan.chariar@gmail.com | +91 99870 83908

COURSEWORK

UNDERGRADUATE INDUSTRIAL IOT SYSTEMS MINOR

- Database Management Systems
- Information Security in Industrial Automation
- Internetworking for Industries
- Principles of Cryptography

OTHER TECHNICAL ELECTIVES

- Machine Vision and Image Processing
- Micro Electro Mechanical Systems
- Machine Learning

COURSERA COURSES

- Python Basics, University of Michigan
- Intro to Digital Manufacturing with Autodesk Fusion 360, Autodesk
- Linux for Developers, The Linux Foundation
- 3D Model Creation with Autodesk Fusion 360, Autodesk
- Spreadsheets for Beginners using Google Sheets, Coursera Project Network
- Autodesk Fusion 360 Integrated CAD, CAM, CAE, Autodesk

OTHER COURSES

- Innovative Engineering, Fractal Works

TECHNICAL ACTIVITIES

INTERNSHIPS

REX ENGINEERING AND METAL WORKS | FLOOR INTERN

June 2022 – July 2022 | Thane, Maharashtra, India

- Observed operations on CNC machines, helped inspect completed jobs, created models, generated g-codes for jobs using Fusion 360, AutoCAD and MasterCam Mill 9.
- Worked under engineers Mr. Pandurang Yadav and Mr. Diptiranjan Pradhan to create a CNC Milled Tray.

PROJECTS

MACHINE LEARNING FOR SQUAT ANALYSIS AND CORRECTION | FINAL YEAR PROJECT

Feb 2023 - June 2023 | Manipal, Karnataka, India

- Worked under Dr. Asha CS and Dr. Shilpa Suresh to create an Autoencoder based model that classified squats into seven types.
- The input data was in the form of videos, and the output given used ML algorithms to estimate a good squat, using the input given. The result was a stacked Bi-GRU with Attention layer, which gave an accuracy of 94.00%.
- A paper titled 'AI Trainer: Autoencoder Based Approach for Squat Analysis and Correction' was submitted to IEEE Access. The publication has been accepted.

EDUCATION

MANIPAL INSTITUTE OF TECHNOLOGY

BTECH IN MECHATRONICS

Expected July 2023 | Manipal, Karnataka, India
 Minor in Industrial IoT Systems
 Sem. 1: 9.23 | Sem. 2: 9.50 | Sem. 3: 9.08 |
 Sem. 4: 9.71 | Sem. 5: 8.38 | Sem. 6: 8.90 |
 Sem. 7: 8.80 | Sem. 8: 10.00 |
 Cum. GPA: 9.17 / 10.00

SMT. SULOCHANADEVI SINGHANIA SCHOOL, ISC

Grad. May 2019 | Thane, Maharashtra, India
 Grade: 95.16%

SMT. SULOCHANADEVI SINGHANIA SCHOOL, ICSE

Grad. May 2017 | Thane, Maharashtra, India
 Grade: 95.80%

LINKS

Github:// [mukundan-chariar1](https://github.com/mukundan-chariar1)
 LinkedIn:// [mukundan-chariar1](https://www.linkedin.com/in/mukundan-chariar1)

SKILLS

PROGRAMMING

Over 5000 lines:

Java • Python

Over 1000 lines:

C • C++

Familiar:

Embedded C • L^AT_EX • Assembly • MySQL
 • Matlab • Simulink • ROS • Gazebo

LIBRARIES

OpenCV • NumPy • SciPy • MediaPipe • Matplotlib • csv • Pandas • TensorFlow • Keras • sklearn • sys • os • shutil • Control System toolbox • Simscape • Simscape Electrical • Communications toolbox • Satelite Communications toolbox • DSP systems toolbox • Signal Processing toolbox

MINI PROJECTS

BIO INSPIRED DESIGNS | MINI PROJECT

March 2022 - Dec 2022 | Manipal, Karnataka, India

- Worked under Dr. Ishwar Bhiradi along with Tejal Shetty to make 3D models of Bio-Inspired structures such as the honeycomb structure, using Fusion 360.
- This resulted in 3D prints of these structures, which will be stress tested by another group.

CONTROL OF A NEEDLE VALVE USING PID CONTROLLER | MINI PROJECT

Sep 2021 - Dec 2021 | Manipal, Karnataka, India

- Used Matlab and Simulink along with their libraries to create a simulation of a needle valve being controlled, using a PID controller. This was a mini project in partial fulfillment of the Drives, Controls and Modelling lab.

DEVELOPMENT OF A MINI 3 WHEELER ROVER | MINI PROJECT

Mar 2022 - Apr 2022 | Manipal, Karnataka, India

- I was in charge of mapping controls input from a graphical interface to the rover, using python code. This was a mini project in partial fulfillment of the Robotics Lab II.

DEVELOPMENT OF A HOME IOT SYSTEM | MINI PROJECT

Mar 2022 - Apr 2022 | Manipal, Karnataka, India

- Used an ESP32 along with various sensors to create a Mini Home IoT system. The app development was done using Blink IoT. This was a mini project in partial fulfillment of the IIoT Lab.

IEMCT INTRO VIDEO | MINI PROJECT

Sep 2020 – Dec 2020 | Thane, Maharashtra, India

- Worked with IEMCT to create a short introductory animation for their YouTube page. This used their existing logo and the software used was Adobe Premiere Pro.

EXTRA/CO-CURRICULAR ACTIVITIES

IE MECHATRONICS STUDENTS' CHAPTER, MANIPAL | VICE PRESIDENT

2021-2022, MANAGING COMMITTEE MEMBER 2020-21

June 2020 - Sep 2022 | Manipal, Karnataka, India

- As the Vice-President of the club, I organized multiple events, coordinated over projects and mini projects, volunteered for collaboration with other student clubs, organized and budgeted the funds for the club and the projects under the club, held recruitment sessions, etc.
- As a Managing Committee member, I participated in various projects, organized the club database, held workshops for my juniors, etc.

MTE STUDENT PEER PROGRAMME | PROGRAMME COORDINATOR

2021-2022

June 2021 - June 2022 | Manipal, Karnataka, India

- I was part of the academic support programme supervised by the department. Responsibilities included providing feedback from the students to the faculty via meetings with them, providing feedback on the curriculum, etc.

LEADERS OF TOMORROW, MANIPAL | MANAGING COMMITTEE MEMBER

2020-21, WORKING COMMITTEE MEMBER 2019-20

June 2019 - June 2021 | Manipal, Karnataka, India

- I worked as a volunteer, helping organize events like the Manipal MUN, and was part of the Logistics and Operations Department.

OPERATING SYSTEMS

Windows • Ubuntu

OTHER SKILLS

GIMP • Adobe Premiere Pro • Excel • Power Point • Fusion 360 • AutoCAD • MakerBot Print

AREAS OF INTEREST

Rehabilitation Engineering • Action Quality Assessment • Robotics • Machine Learning • Machine Vision • Bio Inspired Design • Management

LANGUAGES

English • Hindi • Marathi • Tamil

CERTIFICATES

Click [here](#) to view certificates.

REFERENCES

DR. ASHA CS

ASSOCIATE PROFESSOR,
DEPARTMENT OF MECHATRONICS,
MIT MANIPAL
asha.cs@manipal.edu | +91 99010
99630

DR. ISHWAR BHIRADI

ASSISTANT PROFESSOR (SENIOR
SCALE), DEPARTMENT OF
MECHATRONICS, MIT MANIPAL
ishwar.bhiradi@manipal.edu | +91
84970 40087

MR. AMARJOT SINGH GULATI

OWNER, REX ENGINEERING AND
METAL INDUSTRIES
asgulati@rexengg.com | +91 98215
22998