MEET VYAS

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EDUCATION

Ahmedabad University   Gujarat, India
B.Tech. in Mechanical Engineering with Minors in Physics and Mathematics (GPA - 3.27/4)   *August 2020 – May 2024*

SUMMER SCHOOLS

IAIFI Summer School 2024   MIT
Theme - AI and Statisitics in Physics   *August 2024*

Zwicky Transient Facility (ZTF) Summer School 2024   University of Minnesota
Theme - AI in Cosmology   *July 2024*

Gravitational-Wave Astronomy   International Center for Theoretical Sciences, TIFR
Theme - Gravitational Wave Astronomy   *July 2024*

Fifth IUCSS Summer School   Indiana University, Bloomington
Theme - Lorentz- and CPT-violating Standard-Model Extension   *May 2024*

Zwicky Transient Facility (ZTF) Summer School 2023   University of Minnesota
Theme - Transients   *July 2023*

CONFERENCES

Nancy Grace Roman Space Telescope Summer Conference 2023   NASA
Theme - Space Telescopes and Cosmic Exploration   *June 2023*

Gas Turbine Conference 2023   American Society of Mechanical Engineers
Theme - Gas Turbine and Renewables   *December 2023*

WORKSHOPS

Spectroscopy Calibration Workshop   Roman Wide Field Instrument Calibration Working Group
Theme - Observational Astronomy   *October 2024*

Statistics meets ML in Particle Physics and Astrophysics   PHYSTAT
Theme - ML & Astrophysics   *September 2024*

Rubin Community Workshop 2024   Legacy Survey of Space and Time
Theme - Rubin Science   *July 2024*

Second Intermediate Python for Astronomical Software Development   TVS Science Collaboration LSST
Theme - Git, Software Development   *July 2024*

Utrecht Workshop on Philosophy of Cosmic Inflation   Utrecht University
Theme - Philosophy of Astronomy and Cosmology   *May 2024*

LSST ToO Workshop 2024   Legacy Survey of Space and Time
Theme - Gravitational Waves, neutrinos, solar system object detection   *March 2024*

AI and Cosmology: Frontiers for the next decade 2024 (Organizer)   ICSC, Ahmedabad University
Theme - AI and ML in Cosmology   *April 2024*

EXPERIENCE

Research Intern   May 2024 – Current
International Centre for Space and Cosmology, Ahmedabad University   *Gujarat, India*

Undergraduate Teaching Assistant   October 2023 – March 2024
Ahmedabad University   *Gujarat, India*

Summer Intern   May 2023 – July 2023
Physical Research Laboratory   *Gujarat, India*

Physics Journal Club Coordinator   June 2021 – June 2022
Ahmedabad University   *Gujarat, India*

Student Ambassador   June 2021 – January 2022
Ahmedabad University   *Gujarat, India*

Undergraduate Peer Tutor   August 2021 – December 2021
Ahmedabad University   *Gujarat, India*

INTERNATIONAL COLLABORATIONS

Member of the LSST Transient and Variable Stars (TVS) Science Collaboration	July 2024 – Present
Member of the Cosmic Explorer Consortium	July 2024 – Present
Member of Rubin Undergraduate Network	July 2024 – Present
Member of Roman Wide Field Instrument Working Group	August 2024 – Present

COURSE PROJECTS

Design and Fabrication of a Piston Assembly System
Course: Learning Factory Project   August 2023 – December 2023

Algorithmic Solutions to the Vehicle Routing Problem
Course: Manufacturing Systems and Operations   August 2023 – December 2023

Neural Network along with 3-D SLAM for an autonomous robot
Course: Robotics   January 2023 – June 2023

Music Recognition using Short Time Fourier Transform
Course: Fourier Analysis   August 2022 – December 2022

Calorie Tracking Website
Course: Design, Innovation, and Making   January 2022 – June 2022

Discord Bots using Discord API and JSON
Course: Introduction to Programming   July 2020 – February 2021

SUPERVISED FORMAL RESEARCH EXPERIENCE

Effect of Induction Heating on Temperature and Force Characteristics in Rotary Friction Welding
Metallurgy and Mechanical Applications   December 2022 – December 2023

Implementation of Scheduling Algorithms
Independent Project Course   July 2022 – June 2023

IoT-based Air Quality Sensor Network
Atmospheric Physics   March 2022 – August 2022

SUPERVISED INFORMAL RESEARCH EXPERIENCE

Mechanical Model for Tracking the Optimized Foraging Pattern of Weakly Electric Fish Under Varying Conductivity
Behavioral Ecology   January 2023 – May 2023

PUBLICATIONS

Experimental Investigation of a Concentrated Photovoltaic System Integrated With Water Sprinkler Generating Electricity and Hot Water

ASME 2023 Gas Turbine India Conference (GTINDIA2023)

Rubin ToO 2024: Envisioning the Vera C. Rubin Observatory LSST Target of Opportunity program

Prepared for submission to Astrophysical Journal Supplementary Series

CERTIFICATIONS

- R Programming | *Coursera*

- Matlab Fundamentals | *MATLAB*

- Control Design Onramp | *MATLAB*

- Machine Learning Onramp | *MATLAB*

- Gravitational Wave Open Data Workshop 6 | *Gravitational Wave Open Science Center*

- Gravitational Wave Open Data Workshop 7 | *Gravitational Wave Open Science Center*

Awards and Honors

- Outstanding Performance and Impact on Community | *Ahmedabad University*

- Travel Grant by Ahmedabad University for presenting my research at the ASME Gas Turbine India Conference 2023

- Travel Grant by the Heising Simons Foundation for the Rubin ToO workshop 2024

Volunteerism

Khoj Museum | *Environment*   January 2021 – April 2021
- As a volunteer, I worked on ideas for sustainability under the domain of water conservation with the sub-domain of Technology and Innovation.
- I made a newsletter, came up with ideas for water sustenance, helped in developing a game based on water sustenance, came up with new technologies for water sustenance, and created activities for the same.

Technical Skills

Languages: C/C++, Fortran, HTML/CSS, Java, JavaScript, Mathematica, Matlab, Python, R, Wolfram Language
Frameworks: Node.js, React, RESTAPI,Plotly, Dash, Streamlit, FastAPI, OpenCV, Pygame, Tkinter
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, CLION
Libraries: astropy, bilby, camb, chainconsumer, ChaosPy, class, corner, deap, depthai, depthai-sdk, discord, emcee, gwpy, h5py, healpy, keras, lalsuite, Manim, math, Matplotlib, Mayavi, mpi4py, networkx, numpy, ortools, p5, pandas, pickle, Pillow, Pingouin, pybootstrapped, pycbc, pytorch, pyvis, PyMC3, PyOpenGL, readligo, redback, Researchpy, roboflowoak, scipy, Seaborn, serial, sklearn, SOAP, Statsmodels, SymPy, tensorflow, tqdm, turtle, ztfquery
Machines: Mechanical Operations - Table Saws, Milling Machines, CNC Machines, Lathes, Grinders, 3-D printers, Laser Cutters, Welding, Forging, Drilling Machines, Bandsaws, Shapers, Planers, Broaching Machines, Hydraulic Presses, Injection Molding Machines, Surface Grinders, Cylindrical Grinders, Electro-Discharge Machines (EDM), Water Jet Cutters, Plasma Cutters
Softwares: Abaqus, ANSYS, Arduino, Audacity, AutoCAD, Autodesk Inventor, CakeWalk, Canva, CURA, FLIR, FLstudio, Fusion 360, Gephi, LabVIEW, Latex, LTspice, Matlab, Mathematica, Microsoft Excel, OpenFOAM, Putty, Simulink, SolidWorks, Tinkercad, ToxTrac, Weights and Biases
Alert Brokers: ANTARES, ALeRCE, Fink