

# MEET VYAS

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## EDUCATION

### Ahmedabad University

B.Tech. in Mechanical Engineering with Minors in Physics and Mathematics (GPA - 3.28/4)

Gujarat, India

August 2020 – May 2024

## SUMMER SCHOOLS

### IAIFI Summer School 2024

Theme - AI and Statistics in Physics

MIT

August 2024

### Zwicky Transient Facility (ZTF) Summer School 2024

Theme - AI in Cosmology

University of Minnesota

July 2024

### Gravitational-Wave Astronomy

Theme - Gravitational Wave Astronomy

International Center for Theoretical Sciences, TIFR

July 2024

### Fifth IUCSS Summer School

Theme - Lorentz- and CPT-violating Standard-Model Extension

Indiana University, Bloomington

May 2024

### Zwicky Transient Facility (ZTF) Summer School 2023

Theme - Transients

University of Minnesota

July 2023

## CONFERENCES

### Transients From Space

Theme - Transients

Space Telescope Science Institute (STScI)

March 2025

### 27th International Microlensing Conference

Theme - Microlensing

South African Astronomical Observatory

January 2025

### Nancy Grace Roman Space Telescope Summer Conference 2023

Theme - Space Telescopes and Cosmic Exploration

NASA

June 2023

### Gas Turbine Conference 2023

Theme - Gas Turbine and Renewables

American Society of Mechanical Engineers

December 2023

## WORKSHOPS ATTENDED

### Shaping the Future of TIME DOMAIN ASTRONOMY in the Rubin Era

Theme - Time Domain Astronomy

TVS Science Collaboration LSST

May 2025

### Spectroscopy Calibration Workshop

Theme - Observational Astronomy

Roman Wide Field Instrument Calibration Working Group

October 2024

### Statistics meets ML in Particle Physics and Astrophysics

Theme - ML & Astrophysics

PHYSTAT

September 2024

### Rubin Community Workshop 2024

Theme - Rubin Science

Legacy Survey of Space and Time

July 2024

### Second Intermediate Python for Astronomical Software Development

Theme - Git, Software Development

TVS Science Collaboration LSST

July 2024

### Utrecht Workshop on Philosophy of Cosmic Inflation

Theme - Philosophy of Astronomy and Cosmology

Utrecht University

May 2024

### LSST ToO Workshop 2024

Theme - Gravitational Waves, neutrinos, solar system object detection

Legacy Survey of Space and Time

March 2024

## WORKSHOPS ORGANIZED

### Fourth TVS Software Workshop

Theme - Science cases and practical aspects of using LSST data using Software

TVS Science Collaboration LSST

March 2025

### Third Intermediate Python for Astronomical Software Development

Theme - Unit Testing, Github Actions, Code Profiling

TVS Science Collaboration LSST

December 2024

### AI and Cosmology: Frontiers for the next decade 2024

Theme - AI and ML in Cosmology

ICSC, Ahmedabad University

April 2024

## EXPERIENCE

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<b>Research Intern</b> <i>International Centre for Space and Cosmology, Ahmedabad University</i>	May 2024 – Current Gujarat, India
<b>Undergraduate Teaching Assistant</b> <i>Ahmedabad University</i>	October 2023 – March 2024 Gujarat, India
<b>Summer Intern</b> <i>Physical Research Laboratory</i>	May 2023 – July 2023 Gujarat, India
<b>Physics Journal Club Coordinator</b> <i>Ahmedabad University</i>	June 2021 – June 2022 Gujarat, India
<b>Student Ambassador</b> <i>Ahmedabad University</i>	June 2021 – January 2022 Gujarat, India
<b>Undergraduate Peer Tutor</b> <i>Ahmedabad University</i>	August 2021 – December 2021 Gujarat, India

## INTERNATIONAL COLLABORATIONS

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<b>Member of The Roman Galactic Exoplanet Survey Project Infrastructure Team (RGES PIT)</b>	March 2025 – Present
<b>Member of Roman Wide Field Instrument Working Group</b>	August 2024 – Present
<b>Member of the LSST Transient and Variable Stars (TVS) Science Collaboration</b>	July 2024 – Present
<b>Member of the Cosmic Explorer Consortium</b>	July 2024 – Present
<b>Member of Rubin Undergraduate Network</b>	July 2024 – Present

## SUPERVISED FORMAL RESEARCH EXPERIENCE

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<b>Effect of Induction Heating on Temperature and Force Characteristics in Rotary Friction Welding</b> <i>Metallurgy and Mechanical Applications</i>	December 2022 – December 2023
<b>Implementation of Scheduling Algorithms</b> <i>Independent Project Course</i>	July 2022 – June 2023
<b>IoT-based Air Quality Sensor Network</b> <i>Atmospheric Physics</i>	March 2022 – August 2022
<b>Mechanical Model for Tracking the Optimized Foraging Pattern of Weakly Electric Fish Under Varying Conductivity</b> <i>Behavioral Ecology</i>	January 2023 – May 2023

## PUBLICATIONS

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The CosmoVerse White Paper: Addressing observational tensions in cosmology with systematics and fundamental physics  
*Accepted in Physics of the Dark Universe*

Retrograde Precession of Relativistic Orbits and the Quest for Charged Black Holes  
*Physics of the Dark Universe*

Rubin ToO 2024: Envisioning the Vera C. Rubin Observatory LSST Target of Opportunity program  
*Submitted to Astrophysical Journal Supplementary Series*

Experimental Investigation of a Concentrated Photovoltaic System Integrated With Water Sprinkler Generating Electricity and Hot Water  
*ASME 2023 Gas Turbine India Conference (GTINDIA2023)*

## CERTIFICATIONS

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- 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

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- 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

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### **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

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**Programming Languages:** C/C++, Fortran, HTML/CSS, Java, JavaScript, Mathematica, Matlab, Python, R, Wolfram Language

**Web and App Frameworks:** Dash, FastAPI, Node.js, React, Streamlit

**Developer Tools and Environments:** CLion, conda, Docker, Figma, Git, GitHub, GitHub Actions, GitLab, GitLab CI, Jupyter Notebook, Make/CMake, Markdown, npm, Notion, pip, Prettier, PyCharm, Valgrind, Vite, Visual Studio, VS Code, Wireshark

**Cloud Platforms and DevOps:** Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure

**Testing and Debugging:** PyTest, Valgrind, Wireshark

**HPC Tools and Libraries:** Bash, CUDA, MPI, OpenMP, SLURM

**Mechanical Workshop Tools:** Bandsaws, Drilling Machines, Grinders, Lathes, Planers, Shapers, Table Saws

**Machine Tools and Operations:** Broaching Machines, CNC Machines, Hydraulic Presses, Milling Machines

**Cutting and Forming Technologies:** Forging, Laser Cutters, Plasma Cutters, Water Jet Cutters, Welding

**Advanced Manufacturing Equipment:** 3D Printers, Electro-Discharge Machines (EDM), Injection Molding Machines

**Precision Grinding:** Cylindrical Grinders, Surface Grinders

**Mechanical CAD and Simulation Tools:** Abaqus, ANSYS, Arduino, AutoCAD, Autodesk Inventor, CURA, Fusion 360, LabVIEW, LTspice, OpenFOAM, Simulink, SolidWorks, Tinkercad

**Multimedia and Other Software:** Audacity, Cakewalk, Canva, FLIR, FL Studio, Microsoft Excel, PuTTY, ToxTrac, Weights and Biases