CosmoTalker

A Multifaceted Open-Source Python Library for Space Enthusiasts and Developers

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ABSTRACT

CosmoTalker will provide a sensation of the Universe. It is an open-source project (i.e. it comes under open-source platform). CosmoTalker prioritizes transparency and user control and can be the user's own Application to space to retrieve different types of astronomical data. Version-1 model will focus on our Solar System. Version-2 is rolling out. It has been running on 50000+ machines WorldWide in the competitive world of space-related Python libraries. Data privacy is in the user's hands as the user can investigate the CosmoTalker code in Github the URL is https://github.com/bhuvanesh-m-dev/cosmotalker . It has a powerful search feature so users can jump deep into cosmic information offline, as the core data is programmed as an offline feature. The project is focused and programmed in Python as Python has its simplicity and became the leading Language in Artificial Intelligence, Machine Learning, Deep Learning, as is shown by projects such as DeepSeek, ChatGPT, Mistral, etc. Open-source projects make software free to use, modify, and distribute, fostering global collaboration, rapid innovation, and cost-effectiveness. Thus, CosmoTalker, an open-source model, invites contributions to collectively grow and enhance the project's features and reach. Even though India is the 4th largest economy and 4th most powerful military, its space agency, ISRO, is a leading Agency in space because of successful missions on budget. However, India still lags behind on AI. With its population, and

by conducting various programmes based on AI and astronomy, to drive the innovative and research spirit among the huge population of young minds, India might catch up to the rest of the world.

Keywords : CosmoTalker, Open Source, Universe, Astronomical data, Innovation, Cost - effectiveness, Contributions, ISRO, India

INTRODUCTION

Since ancient times, Humans have always wondered what's out there in the sky.

Galileo Galilei, with his self-made telescope observed the four large moons of Jupiter, While William Herschel discovered Uranus. Even with limited knowledge about space and technology, many scientists studied and about the universe. And with our recent developments in space technologies, we are able observe and study objects millions of light years away. With these advancements, the field of astronomy and space science is rapidly growing in the 20th century.

The field of astronomy is of great interest to many young minds who are curious in learning more about the universe. Giant quasi stars which are million times larger than our sun, Invisible monsters like black hole that eat everything even light, Massive colorful clouds called nebulas which give birth to stars and the possibility of existence of alien life. Surely, we have more information in internet about our universe, but they are unorganized and sometimes not reliable. And of course you need internet to access them. Thus, blindly searching the web and trying to learn about something might kill the curiosity.

Most space and science tools cannot be used by common people. Encyclopedias drown you in text and cannot be carried everywhere and sometimes we need to pay to use some software. On other side, Python libraries are mostly used by researchers, not common learners. This is where *CosmoTalker flips this script !*

CosmoTalker is a Python library especially designed to simplify space science exploration. It focuses on offline accessibility, providing instant access to data while offering online features for real-time updates or expanded searches.

COSMOTALKER SOFTWARE EXPLANATION

It is a Python library designed to give space and science exploration. It centers on offline accessibility , delivering instant access to core data without requiring internet connectivity, while offering optional online features for real-time updates or expanded searches.

Designed for students, educators, and curious minds, it blends simplicity with depth—no PhD or internet connection required.

WORKING PRINCIPLE : The library embeds a curated dataset locally, enabling fast, reliable retrieval of essential information without network delays. For dynamic or specialized data (e.g., live satellite tracking), it selectively connects to external APIs only when requested , creating a flexible hybrid model that balances offline efficiency with online depth.

WHY COSMOTALKER ?

While libraries like Astropy or Skyfield or PyKE specialize in offline astronomical calculations, and tools like Sentinelsat rely on internet access for satellite or space data, CosmoTalker stores essential data locally for instant access without an internet connection but also integrates smooth online features for deeper exploration. This hybrid design ensures that users get reliable, fast results offline while also retaining the flexibility to dive deeper in online when needed — making this cosmic library a big lead over others.

Additionally CosmoTalker also has built in Offline, User friendly chatbot called **oolit** which answer's any question you ask regarding space.

oolit : YOUR PERSONAL OFFLINE AI SPACE GUIDE

oolit is an offline chatbot , built in inside CosmoTalker, it answers your questions about space facts, space events precisely and instantly.

- **why oolit:**
- *oo* stands for mystry, eeriness and the quiet nature in space(like black holes and distant galaxies.)
- *lit* represents the bright like stars and nebulas, hence the name oolit.

- **Specialties:**
- It's an offline model. It does not need internet to work. It gives instant answers to the questions you ask. You do not need to search . Just type the question as prompt and the answer is on the screen.
- In short oolit is a smart offline cosmic guide which makes learning fun and easy.

ADVANTAGES OF COSMOTALKER

- **Offline functionality**
  - The ability to access python libraries without internet is on the main aspect and aim of CosmoTalker. Thus it is ideal for school students and people in remote areas.
- **Simple and user friendly**
  - CosmoTalker was designed with simple commands and output, in a way that people from non technical background can also access them easily.
- **Open-source and customizable**
  - Developers can modify it or expand it for their own space project or work or even for learning platforms.
- **Built it offline chatbot**
  - *oolit* is a user friendly offline chat bot and your guide for space exploration. It answers yours questions instantly and precisely.
- **Online search feature**
  - **Its uses Ecosia search engine for planting trees by Ecosia and support Afforestation**

USES OF COSMOTALKER

CosmoTalker is a powerful tool for students, educators, developers, and space enthusiasts . Students can quickly look up cosmic facts, student can integrate it into there school projects or college projects for real-time space data, while teachers can use it to explain concepts dynamically or enhance lessons in low-internet settings. Developers benefit from its Python-friendly framework to build apps or analyze data effortlessly with support of other python based libraries like pandas, numpy, seaborn, etc. Astronomy lovers enjoy offline exploration of the universe, even contributing to environmental causes via its eco-conscious search feature. By bridging instant access, education, and sustainability, CosmoTalker empowers users to engage with science creatively—whether for homework, classroom activities, prototyping ideas, or satisfying curiosity under the stars.

FUTURE VISION

CosmoTalker's defining strength is its lightning-fast offline capability , providing instant responses (0.007 seconds) by storing critical data locally. Despite its current compact footprint (~150KB), future updates aim to expand this to 1GB, improving its efficiency in an era where even mobile games exceed that size. By not relying on connectivity, it mirrors the need for autonomy in extreme scenarios, like communicating with Voyager 1, where signals take 80 minutes to traverse 24 billion kilometers. This offline-first design its not just practical—it is strategic, ensuring instant access to science without network constraints. Paired with the oolit and CosmoDB, the efficiency of CosmoTalker is increased drastically.

For more details : https://pypi.org/project/cosmotalker

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Mistral : mistral.ai

CosmoTalker : A multifaceted Open-Source Python Library, Project hosted on GitHub, github.com/bhuvanesh-m-dev/cosmotalker