AI Space Data Explorer:

Enhancing Citizen Access to space data

An AI-powered tool that makes space data
easy to explore for students, researchers,
and space enthusiasts.

1. What We Do:

We transform complex space data into an engaging, interactive experience that anyone can understand. Our tool empowers you to ask questions, visualize data, and learn about space—all in one place.

2. Why It Matters:

Space data is available, but too often it's hidden behind complicated technical barriers. Our solution opens the door for more people to explore, learn, and innovate in the field of space research.

Problem Statement

1. Complexity:

- Space data is provided by agencies like NASA and ESA through complex APIs.
- Raw data formats and technical jargon make it hard for non-experts to use.

2. Accessibility:

- Students, researchers, and enthusiasts struggle to extract meaningful insights from this data.
- Valuable space information remains underutilized due to technical challenges.

Our Solution:

AI Space Data Explorer is a next-generation platform that simplifies access to space data through following key features:

- **Conversational AI** – Users can ask questions in natural language and receive meaningful insights derived from real-time space data.

- **Personalized Learning** – AI recommends space topics and datasets based on user interests and engagement patterns.

📜 Chat History

🧑 **You:** what is a black hole?

🤖 **AI:** A black hole is a region in space where the gravitational pull is so strong that nothing, including light, can escape. It is formed when a massive star collapses in on itself and its gravity becomes so strong that it warps the fabric of spacetime around it.

Here's a simplified explanation of how black holes are created:

1. **Star formation**: A massive star is born and lives out its life, fusing hydrogen into helium in its core.

2. **Core collapse**: When the star runs out

🚀 AI Space Data Explorer
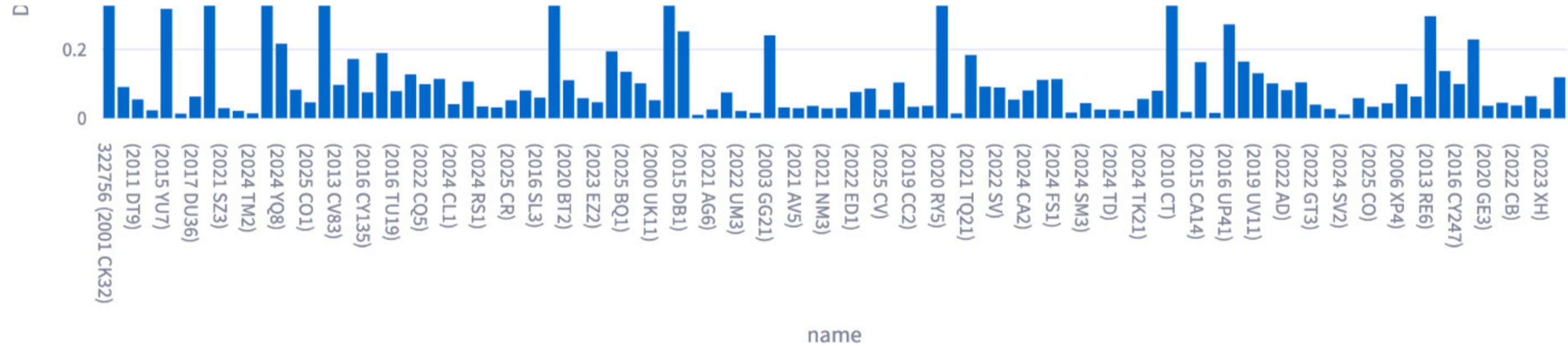
💬 Ask something about space:

what is a black hole?

Submit

🤖 AI Response:

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Here's a simplified explanation of how black holes are created:

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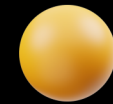(2020 GE3)
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📷 **Astronomy Picture of the Day**

HOW IT WORKS

DATA COLLECTION

The platform fetches real-time data from NASA APIs (and soon ESA APIs).

AI PROCESSING

Using state-of-the-art large language models Llama 3.3 and LangGraph, we analyze and interpret the data.

SMART VISUALIZATION

Converts raw data into interactive charts and graphs for easy understanding using plotly.

USER-FRIENDLY INTERACTION

Streamlit-based dashboard allows seamless exploration and learning.

SIZE OF MARKET

The global market for space education, AI-driven research, and space data analytics is growing rapidly. Key market statistics include:

- **Global Space Education Market**: Valued at $12.8 billion in 2024, projected to grow at 8.6% CAGR by 2030.
- **AI in Space Research**: Expected to reach $17.5 billion by 2028, driven by advancements in AI-powered analytics.
- **EdTech & Research Tools:** A $500 billion market, where AI-powered space data tools are an emerging niche.

Global Space Education Market:$12.8 billion

AI in Space Research:$17.5 billion

EdTech & Research Tools: $500 billion

Target Audience

1. **Students & Educators:**

   Schools and universities incorporating space education.

2. **Independent Researchers:**

   Scientists and scholars analyzing real-time space data.

3. **Space Enthusiasts:**

   Individuals exploring celestial events, satellite data, and planetary science.

Revenue Model

1.Freemium Model:

Basic access to key features is free. Premium features can be unlocked via subscription for advanced users.

2.API Access:

Offer subscription-based API access to academic institutions and research organizations.

3.Custom Solutions:

Provide tailored integrations and solutions for educational and space tech companies.

ROADMAP& NEXT STEPS

Enhance AI Accuracy:

Integrate more training datasets to improve the precision of our conversational AI.

Expand Data Sources:

Add support for additional space data sources (e.g., ESA, ISRO).

Mobile Optimization:

Develop a mobile-friendly version of our dashboard.

User Feedback:

Gather insights from early adopters to refine features and improve the user experience.

FUTURE DEVELOPMENTS

Advanced Visualizations:

- Introduce interactive and possibly 3D visualizations for deeper insights.

Enhanced Analytics:

- Implement more sophisticated analytics to unlock further insights from space data.

Global Partnerships:

- Collaborate with educational institutions and space organizations worldwide.

Mobile & Voice Integration

Develop a mobile-friendly version with voice-assisted AI for hands-free space exploration.

TECH STACK OVERVIEW

Programming Environment:

Python 3.10 with Poetry for efficient dependency management.

Data Sources:

NASA APIs for real-time space data (expanding to include ESA soon).

Artificial Intelligence:

Large Language Models: Llama 3.3 for powering our   conversational AI.

LangChain:
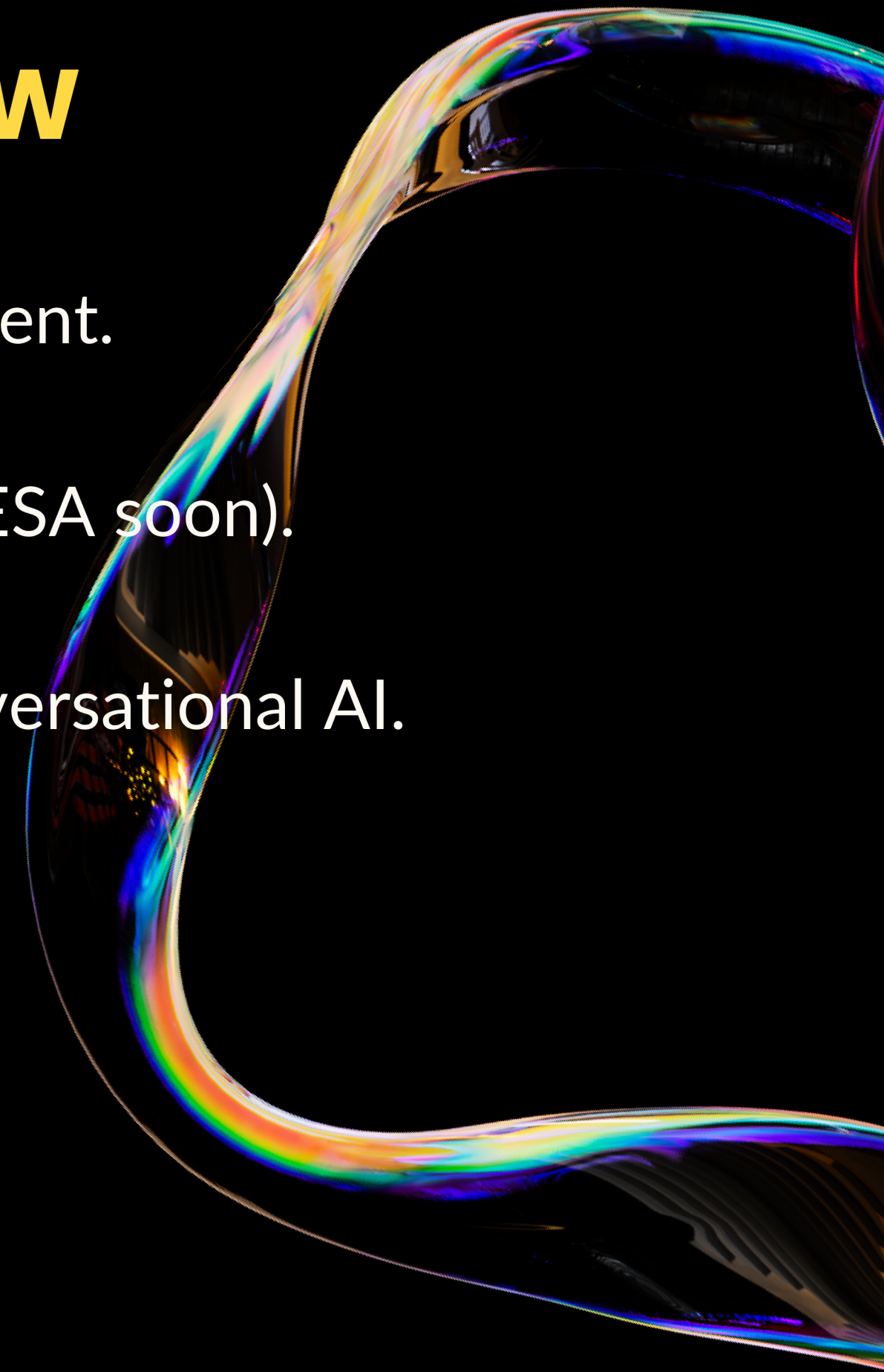
For seamless interaction between our AI models and data.

User Interface:

Streamlit:

For creating an interactive and user-friendly dashboard.

Deployment:

Deployed via Streamlit Cloud for scalable, reliable access.

MEET THE TEAM

ANZAR AHMAD
AI Research and Solutions Architect

NUMAN ABUBAKAR
Software Engineer

MUHAMMAD HANZLA
Python Developer

VIKASH KUMAR
Ai Engineer

Shahzad Hussain
Ai Enthusiast

THANK YOU

for your time and attention

Project URL

Github Repository

Lablab.ai Team Link