



NASA Space Apps Challenge 2025

"Embiggen Your Eyes" Solution

Interactive Space Exploration Through Satellite Perspectives

Challenge: Help people see beyond human vision using satellite data

⊘ The Human Vision Problem

Human eyes see only 0.0035% of the electromagnetic spectrum

- ✗ No infrared vision (heat signatures)
- ✗ No microwave detection (cosmic background)
- ✗ No access to space telescope perspectives
- ✗ Can't experience how satellites actually observe space

Challenge: Give people satellite eyes



StellarEye Solution

Interactive satellite vision for everyone

- ✓ Multi-wavelength space map - Switch between optical, infrared, microwave
- ✓ Real NASA survey data - ESO, WISE, 2MASS backgrounds
- ✓ Mission image gallery - Voyager, Hubble, JWST archives
- ✓ Google Maps for space - Intuitive exploration interface

Experience how satellites see the universe



Real NASA Data Integration

Authentic satellite perspectives

Background Surveys:

- ESO All-Sky Survey (optical wavelengths)
- NASA WISE Survey (infrared heat signatures)
- NASA 2MASS Survey (near-infrared penetrating dust)

Mission Images:

- NASA Images API (Voyager, New Horizons, Hubble)
- Real astronomical coordinates (Gaia star catalog)
- Progressive image loading with CORS proxy

Live Demo Features

Interactive space exploration

Map Interface:

- Click celestial objects (stars, planets, galaxies)
- Switch survey backgrounds (optical ↔ infrared)
- Real astronomical coordinates (RA/Dec)


Image Gallery:


- Multiple telescope perspectives of same object
- Advanced zoom/pan viewer
- Mission metadata and descriptions

Objects (1/30)

jupiter

×

 **Real Coordinates**
Objects pinpointed to actual positions in astronomical survey images. Stars & galaxies are precise; planets show recent positions.

 **Debug Objects**


Total: 30 | Filtered: 1

Background: survey

Search: "jupiter"

- All (30)
- star (10)
- planet (8)
- exoplanet (6)
- galaxy (2)
- nebula (4)

DSS Optical Survey
Digital Sky Survey - Optical wavelengths
Coordinate System: equatorial



Jupiter
Planet
RA: 67.80° Dec: 23.10°



Cassiopeia

×

Constellation Boundary

Map Status: ☒ Loaded

Objects: 1

Mode: survey



Jupiter
Planet

BASIC PROPERTIES

Coordinates:
Magnitude:
Type/Class:
Distance:
Survey:

RA 67.800°, Dec 23.100°

-2.7

Gas Giant

778.5 million km from Sun

equatorial

PHYSICAL PROPERTIES

Temperature:
Mass:
Radius:
Luminosity:
Age:

-108°C

317.8 × Earth

11.21 × Earth

Reflects sunlight

4.503 billion years

ABOUT

Jupiter is the largest planet in our solar system and has a Great Red Spot storm.

Key Facts:

- Largest planet in solar system
- Has over 80 moons
- Great Red Spot storm
- Acts as "cosmic vacuum cleaner"

View Images

Center on Map

Click object on map or sidebar to view details

✓ "Embiggen Your Eyes" Achieved

Giving humanity satellite vision

Challenge Requirements Met:

- ✓ Help people see beyond natural perception
- ✓ Use real satellite data (NASA/ESA missions)
- ✓ Create interactive experience
- ✓ Educational and accessible