NASA Space Apps 2025: AI Solution for Exoplanet Discovery

Have you ever imagined another world like ours?

The Challenge We Face

7,600

TESS Candidates

Potential exoplanets waiting to be confirmed

638

Confirmed Planets

Successfully validated discoveries

The gap between discovery and confirmation represents thousands of potential worlds that could change our understanding of the universe.

What is a Light Curve?

A light curve is like a star's heartbeat - it shows how bright a star appears over time. When a planet passes in front of its star, it creates a tiny dip in brightness that we can detect from Earth.

These subtle changes in starlight are the key to discovering new worlds beyond our solar system.

The Scientists' Challenge

> ## Finding confirmed exoplanets is like searching for a needle in a haystack

Scientists spend countless hours manually analyzing light curves to validate potential planet discoveries. The time required to confirm each candidate creates a massive bottleneck in our quest to find new worlds.

This manual process means that thousands of potential discoveries remain unconfirmed, slowing down our understanding of planetary systems.

Our AI: A Smart Co-Pilot

We've developed an AI system that acts as a smart co-pilot for scientists, accelerating the exoplanet confirmation process while maintaining the human expertise that's essential for discovery.

Our solution doesn't replace scientists - it empowers them to focus on the most promising candidates and make breakthrough discoveries faster than ever before.

How Our AI Works

01

Recognize Patterns

Identify characteristic signatures of planetary transits in light curve data

02

Retain History

Learn from previous confirmed discoveries to improve detection accuracy

03

Check Physics

Validate findings against known physical laws and planetary formation models

04

Compare with Scientific Knowledge Base

Cross-reference results with existing astronomical databases and research

Impressive Results

98%

Accuracy

Precise identification of confirmed exoplanets

60%

Less Data Required

Efficient processing with reduced computational needs

80ms

Processing Time

Lightning-fast analysis of light curve data

These results demonstrate our AI's ability to dramatically accelerate exoplanet discovery while maintaining the highest standards of scientific accuracy.

Demo: AI in Action

Our user-friendly interface presents scientists with highlighted curves and a comprehensive side panel containing AI-generated insights, making it easy to identify the most promising exoplanet candidates at a glance.

The system provides clear visual indicators and detailed analysis, allowing researchers to quickly focus their attention on the discoveries that matter most.

Social Impact

Citizen Science Access

Making exoplanet discovery accessible to amateur astronomers and citizen scientists worldwide

Faster Research

Accelerating the pace of astronomical discovery and expanding our knowledge of the universe

Future Mission Readiness

Preparing for next-generation space telescopes and missions with advanced AI capabilities

Our AI solution democratizes space exploration, enabling faster scientific breakthroughs and preparing humanity for the next chapter in our quest to find life beyond Earth.

The Future of Discovery

With our AI co-pilot, we're not just finding planets faster - we're opening the door to a universe of possibilities. Every confirmed exoplanet brings us one step closer to answering the fundamental question: Are we alone?

Join us in revolutionizing space exploration and discovering the worlds that await us among the stars.