**Project proposal**

**Project Description:**  
This project is about building an AI system that can help NASA plan out what the Mars rover should do each day. Right now, a lot of that work falls on engineers who have to look at tons of data and make tough calls daily. The idea behind this AI is to make their job easier. It would check out the terrain, figure out how much energy the rover has left, look at the weather, and consider which science tasks are most important. Then it would suggest the best and safest route the rover should take to get the job done.

The purpose of this system is not to replace people. It is meant to support them by handling the data-heavy part of the process, which can save time and reduce the chance of small mistakes turning into big problems. This could be a game changer for missions that depend on accuracy, safety, and quick decision making.

This concept was inspired by the work NASA is already doing with AI, especially in real life missions like Perseverance. I also pulled ideas from exhibits I visited at Space Center Houston and from a NASA-led AI workshop hosted with Rice University here in Houston. I came across a few articles on Medium that broke down how NASA is already using AI in current missions. They explained how the technology is being used to help guide the rover, look through images, and even choose which rocks to study. Seeing that made it even clearer to me that AI is becoming a bigger part of space exploration. It gave me more confidence that this project idea makes sense for where things are headed.

**Goals:**  
 The goal of this project is to improve both the safety and productivity of Mars rover missions. If the rover can avoid dangerous terrain and focus on high-priority science tasks, missions are more likely to succeed. By using data from rover sensors, cameras, and satellite images, the system would help automate daily planning tasks that engineers currently do by hand.

Automating that part of the process would not just save time. It would also help reduce human error, especially when fast decisions are needed. The AI would handle scanning the data and laying out smart options, so the team can focus more on big-picture planning. This would take a lot of pressure off the engineers and help them react quicker when things on Mars change without warning, like during a dust storm or a sudden drop in power.