

## EXPLORATION IDEA PROFILE: Augmented Reality and Visualizing Solar Missions

### EXPLORATION IDEA

Augmented reality (AR) allows users to experience a real-world environment enhanced by computer-generated perceptual information. Our team is exploring innovative uses of AR as a tool, including ways to add a tactile experience. For instance, one AR tool called the Merge Cube enables users to explore holographic models while physically holding and interacting with 3D objects. Since many informal and formal educators are already using and developing AR learning experiences with tools such as the Merge Cube, we have the opportunity to enhance that experience with NASA content.

Thanks to NASA Heliophysics missions, which focus primarily on the study of the Sun, such as Parker Solar Probe, Solar Dynamics Observatory, and Solar Orbiter, we are exploring opportunities that allow users to feel like they're "holding the Sun" and/or observing spacecraft while also learning more about missions of their choice.

### TARGET AUDIENCE(S)

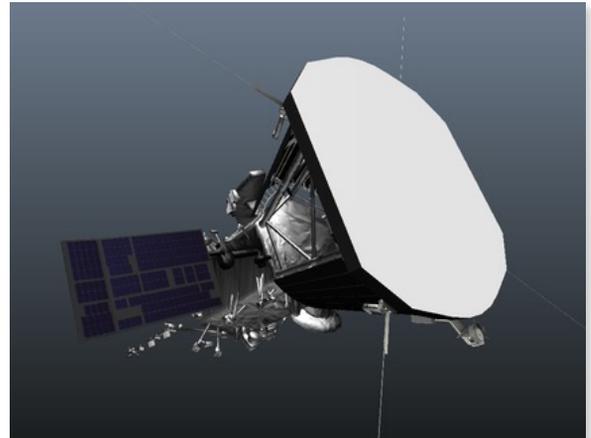
A wide range of audiences are appropriate for this project, from elementary school students to the general public.

### POTENTIAL IMPACT

This technology and program allows for a better understanding of our Sun and the missions that study the Sun.

Large scale, fully volumetric data visualization can become a teaching tool for any age, bridging the gap between computer simulations and three dimensional real-space data presentations.

[www.nasa.gov](http://www.nasa.gov)



*A 3D model of the NASA spacecraft, Parker Solar Probe.  
Credit: NASA*

### RELATED IDEAS/INNOVATIONS

- Create a repository of NASA AR spacecraft experiences
- Create our Solar System with accurate orbits and to scale planets

### MATERIALS/EQUIPMENT

- Merge Cube
- Cell phone or tablet
- CoSpaces Edu

### EXPLORATION IDEA TEAM

- **Team Lead:** Lani Sasser (NASA)
- **Affiliated Contributors:** Carroll County Public Library, Maryland and Dr. C. Alex Young, NASA Heliophysics Science Division

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# Augmented Reality and Visualizing Solar Missions

### What's the NASA Connection?

Use these ideas to better understand how NASA uses augmented reality and other technologies to enhance visualization and interaction with real-world content.

### STEAM Subject Matter Targets:

#### **Science:**

- The Sun
- Space Science
- Motion and Stability: Force and Interactions (Newton's Law)

#### **Technology:**

- Augmented Reality
- Virtual Reality
- Understanding 3D
- Holograms
- Creating Apps

#### **Engineering:**

- Computer Engineering
- Graphic Design

#### **Arts:**

- Graphic Design
- 3D Design

#### **Mathematics:**

- Problem Solving

**Exploration Idea Profiles** provide a basic snapshot of an innovative NASA based idea. They are developed through a guided process involving a step-by-step guide/worksheet where participants are invited to consider additional topics that include:

- Connections to other technologies
- Connections to existing information/research
- Connections to educational standards
- Connections to existing activities/projects
- Universal design

Additional information is also included to assist with further exploration or expansion of the idea in an individualized way.

### HOW TO CONNECT

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