

Technology Tools to Support Touch the Sun and Earthrise

Augmented Reality

ProtoSpace Augmented Reality for Parker Solar Probe (Demonstration) (2m14s)

Engineers from the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland (where Parker Solar Probe is under construction) are leveraging a new augmented reality (AR) tool called ProtoSpace, developed at NASA's Jet Propulsion Laboratory, to improve how the men and women building the spacecraft can work on construction in a virtual, digital space.

How AR was used for developing the Parker Probe

<https://www.youtube.com/watch?v=UwYsslc8GZE>

How NASA's Jet Propulsion Laboratory (JPL) is using emerging media technology such as AR and VR to facilitate research and space exploration.

<https://www.youtube.com/watch?v=x8ydksKuMMM>

Space Action Weather Center

<https://sunearthday.nasa.gov/swac/educators/>

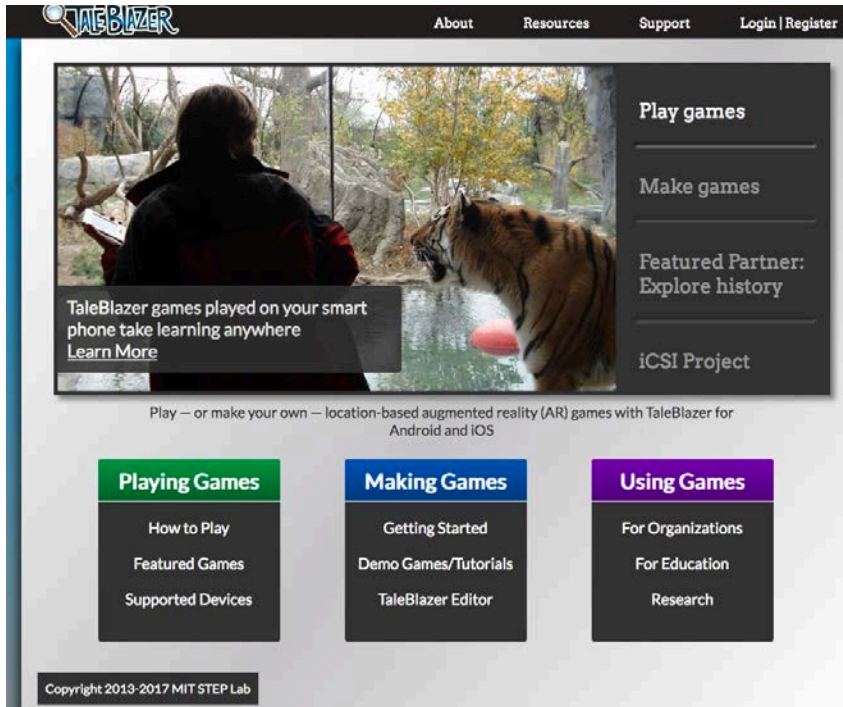
Using the Space Action Weather Center you will be able to:

- Predict which sunspots may be a source of solar storms!
- Discover when solar storms occur and predict which ones will affect Earth!
- Measure disturbances to Earth's magnetic field and predict auroras!
- Know when to watch for auroras!
- Share the NEWS as professional Space Weather ALERTS!

NASA Mars HoloLens demo (AR) https://www.youtube.com/watch?v=lcJ-JuA_K7U (5 min. 10 sec)

Creating an Augmented Reality Environment

There are several free apps/online editors to create an augmented reality environment. One of the free tools/apps is Taleblazer. Go to taleblazer.org and find out more about how to use it including tutorials.



Virtual Reality

Explore these using VR glasses or google cardboard

<http://virtualrealityforeducation.com/google-cardboard-vr-videos/science-vr-apps/>

Good Video Links on the Youtube 360 channel (supports VR format/360 split screen mode)

<https://www.youtube.com/watch?v=IVtGwTrh6qQ&t=31s> (4:21)

<https://www.youtube.com/watch?v=pCve1w1GF0s&t=26s> (5:17)

<https://www.youtube.com/watch?v=ak6PL9OFfMU&t=77s> (2:21)

<https://www.youtube.com/watch?v=qhLExhpXX0E&t=128s> (11:07)

Interesting Apps

Titans of Space

Want to learn more about space? Titans of Space takes you on a miniature tour of our solar systems in order for you to get an up close look at it. While the tour is as authentic as possible, the actual sizes are scaled down by "1 millionth of their actual size.". Titans of Space is one of the oldest VR educational experiences ever created and we highly recommend you to try it.

Star Chart

This is a real-time space simulation that takes you on a tour of the solar system. You can explore a 3D solar system, all 88 constellations, the most visible stars we are able to see from earth, and every moon in our solar system. It is the ultimate astronomical VR experience and allows for tons of exploration.

Robotics

We had two different robots that the students put together and programmed today but actually the Makeblock 10-in-1 robot can be 10 different robots at different times. The Makeblock mbot v1.1 is the simpler robot we used and is available for less than \$100. It is programmable and includes a remote control.

The Makeblock 10-in-1 robot kit is a bit more expensive (around \$340) but multiple robots can be created at different times. It can also be programmed with mBlockly software similar to Scratch.

Video on programming Mbot robots

https://www.youtube.com/watch?v=i1J1-W_onz0