Europlanet Science Congress 2021
Virtual meeting
13 September – 24 September 2021

EPSC Abstracts
Vol. 15, EPSC2021-530, 2021, updated on 21 Jul 2021
https://doi.org/10.5194/epsc2021-530
European Planetary Science Congress 2021

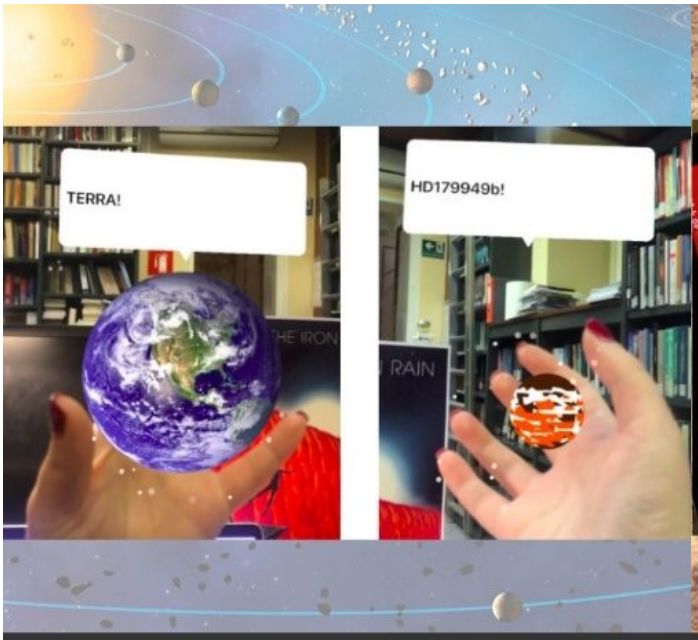
Learning astronomy through Augmented Reality: EduINAF resources to enhance students' motivation and understanding

Laura Leonardi et al.

In this presentation, we will illustrate Augmented Reality (AR) resources developed by INAF (The Italian National Institute of Astrophysics) for communicating astronomy, distributed to schools and the general public by EduINAF, the online magazine devoted to education and outreach, (https://edu.inaf.it/). The impact of these initiatives and future perspectives will also be provided. AR and other innovative technologies have a very high potential in astronomy communication, outreach and education. By adding texts, images, overlays, sounds and other effects, AR enhances users' experience, allowing personal and interactive choices and offering unique educational opportunities. Due to its benefits of providing an engaging and immersive learning space, the use of AR in education has been recognized as a powerful instrument for educators and students. Among the first attempts and experiments with AR, in 2019 we created an augmented reality app - both in Italian and English - dedicated to the Museum of Specola inside the Astronomical Observatory of Palermo, in order to promote the cultural heritage of the institute. Using a simple tool like the app *Zappworks Studio Widgets* and a smartphone, the public could interact with the history and the instruments held in the museum, choosing between seven different levels of information. In 2020 - on the occasion of "Esperienza InSegna 2020", a science fair for schools, which every year counts about 15.000 participants - INAF created an interactive game called "Terra Game" using Metaverse Studio. Discovering the "ingredients for life" and the composition, temperature and atmosphere of different planets, students were able to understand how special the Earth is in comparison to the other planets of the Solar System and to exoplanets orbiting around other stars. In 2021, to catch teenage students' attention, we integrated new technologies in the learning path dedicated by EduINAF to Mars on the occasion of the landing on Mars of NASA's rover Perseverance. We developed the augmented reality experience "MARS2020 Perseverance" with *Zap works Studio Design*, showing the objectives of the mission, other rovers landed on Mars and the sophisticated instruments onboard. Using this app people can discover the instruments used by the rover for acquiring information about Martian geology, atmosphere, environmental conditions and potential biosignatures. The app also gives the opportunity to visit NASA resources and take a selfie with the Perseverance and the drone Ingenuity and share the pictures with friends through social media. To mark the event of the *Supermoon* of 26th May 2021 EduINAF also published educational resources dedicated to the moon. Among these, the augmented reality experience "Maree Lunatiche", developed with Zap works Studio Design. This app explains the phenomenon of tides. From the menu, there is also the opportunity to interact with a 3D model of the moon and to take a selfie with the full moon. The impact of these and other AR initiatives in EduINAF, as well as their future perspectives, will also be provided in this talk.

The AR poster of the moon experience.

The AR poster of MARS2020 Perseverance.



"Terra Game" to discover the "ingredients for life" and the composition, temperature and atmosphere of different planets.

Take a selfie with Perseverance and Ingenuity with the AR activity "MARS2020 Perseverance".

The AR app dedicated to the Museum of Specola inside the Astronomical Observatory of Palermo.

"Maree Lunatiche" explains the phenomenon of Moon tides.

How to cite: Leonardi, L., Daricello, L., and Giacomini, L.: Learning astronomy through Augmented Reality: EduINAF resources to enhance students' motivation and understanding, European Planetary Science Congress 2021, online, 13–24 Sep 2021, EPSC2021-530, https://doi.org/10.5194/epsc2021-530, 2021.

Comments on the display

Login to access the discussion