

TSYP Challenge

Dear **astronauts**, prepare your seatbelts and prepare for the **launch** of the IEEE Computer Society – Tunisia Chapter **Rocket**.

Topic :

Repeating research that produced a new discovery is one of the main ways used by scientists to confirm the validity of a finding and it is called Research Reproducibility : (<https://journals.ieeeauthorcenter.ieee.org/create-your-ieee-journal-article/research-reproducibility/>)

Challenge :

This year's challenge aims to reproduce the result of the scientific paper: Segmentation Convolutional Neural Networks for Automatic Crater Detection on Mars done by *Danielle M. DeLatte* , Member, IEEE, *Sarah T. Crites* , *Nicholas Guttenberg* , *Elizabeth J. Tasker*, and *Takehisa Yairi*, Member, IEEE and published in *IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING*, VOL. 12, NO. 8, AUGUST 2019

The dataset contains two sets of planetary models. One set contains two Moon models as used during the preparation and the other contains six Mars models as used at the actual competition. The dataset can be used in the normal mode application.

(<https://github.com/js1019/NormalModes>).

Instructions:

Each model data contains files of P-wave speed, S-wave speed, density, the gravitational field, and mesh information, including node positions, neighbors, element-node relations. In addition, vtk files of the model and the gravitational field are also included in each model directory and can be viewed using ParaView. These models can also be re-generated using the scripts provided in (<https://github.com/js1019/PlanetaryModels>).



Score : 20 PTS

Non Technical part : 10 PTS

- Respect of the research authenticity **4PTS**
- Pitching **6PTS**

Technical part : 6 PTS

- Reproducing the same results **3PTS**
- Optimizing results **3PTS**

Bonus : 4 PTS

- Writing a research paper (2- 4 pages) with respect for IEEE format **2PTS**
- Having an advisor phd student or professor **2PTS**

Criteria :

- Each Sbc is represented by only 1 team . Maximum 2 members of the team can pitch and (1/3) of the team is composed of official CS members

Example: if the team is composed of 6 members : 3 members should hold the cs membership. If 5 members: 2 members should hold the cs members

- PS : this challenge is an exercise and all the papers will be destroyed right after the end of it in respect to the members copyrights

Deadline : December 14th, 2022