

Nuclear physicists win the UNESCO CodeTheCurve Hackathon of COVID-19 projects

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The Nuclear Physics Group of Complutense University of Madrid (GFN-UCM) was the master winner of the recent UNESCO CodeTheCurve Hackathon, where more than 200 teams from more than 25 countries participated with their COVID-19-related projects. The GFN-UCM is part of MediNet, a Networking Activity within the EU-funded (H2020) ENSAR-2 programme, which the Italian Institute for Nuclear Physics (INFN) is also part of MediNet focuses on the development of tools to be used for medical applications and specifically on radiation therapy.

The hackathon was organized in partnership with IBM and SAP, and it was *"aimed at young developers and innovators to use their digital skills, creativity and entrepreneurial spirit to join forces to inspire and develop digital solutions for the current and future challenges of the pandemic."*

The X-COV project seeks to help radiologists in the diagnosis and patient assessment of COVID-19 patients using chest X-rays and Artificial Intelligence tools. This project was designed to address the need for doctors to analyze large amounts of medical data, and to understand the severity of COVID-19 in patients. X-COV created a data model using Artificial Intelligence tools to analyze chest X-rays using freely available data and anonymized data from collaborating hospitals in Madrid. The tool will be available via this website, but it is important to mention that it is intended for research purposes only until it is validated and approved by the health authorities.

X-COV is led by Joaquín López Herraiz from the Nuclear Physics Group and from IPARCOS at the Complutense University of Madrid, with the collaboration of students, researchers and professors from that group. Their experience as physicists in medical imaging and radiation detection has helped them with the preprocessing of the images, which is key aspect to obtain a good accuracy in the results, as well as validating this tool and improving it taking into account tells the opinions of radiologists.

The feedback from members of the MediNet network was very useful in the development of the project. This is a significant example of the importance of sharing knowledge and ideas in EU networking.