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High Precision AI and Tomosynthesis System for COVID-19

Researchers in Spain have started work on a project to develop a new high-precision radiology system for improved diagnosis and management of COVID-19 patients.

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The new system will combine artificial intelligence (AI) and tomosynthesis – with low dose x-ray imaging – to enhance its diagnostic accuracy, which is comparable to that of a computerised axial tomography (CAT) scan. According to the researchers, x-ray films are not very sensitive and underestimate pulmonary damage in COVID-19 patients. While CT or CAT provides a more reliable diagnosis , using this modality to test all patients with suspected COVID-19 infection is not viable because of issues regarding equipment availability and logistics.

By comparison, the new imaging system will provide a low-cost alternative to CT scan and is portable enough to be installed in vehicles or in temporary triage tents. The new imaging technique, expected to be completed within six months, will be able to perform “quasi-tomographic” x-ray studies. This will help in facilitating characterisation of the coronavirus outbreak, improving detection of pulmonary involvement in infected patients.

“The incorporation of IA algorithms can contribute to facilitating diagnosis, accelerating image analysis and reducing the dose of radiation the patient receives”, explained the research project’s principal investigator, Manuel Desco, affiliated with the Bioengineering and Aerospace Engineering Department at Universidad Carlos III de Madrid (UC3M). UC3M is co-developing the new AI-based system with the Hospital General Universitario Gregorio Marañón (HGUGM), the Instituto de Investigación Sanitaria San Carlos, and the company Sedecal Molecular Imaging (SMI), which serves as the project coordinator.

Source: Universidad Carlos III de Madrid

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Published on : Tue, 28 Apr 2020