STUDY SHOWS AI SOFTWARE CAD4COVID-Xray COMPARABLE IN PERFORMANCE TO RADIOLOGISTS

Nijmegen, 20ᵗʰ May 2020 – Research published in journal *Radiology* shows that artificial intelligence tool CAD4COVID-XRay can perform comparably to radiologists in triaging suspected COVID-19 cases by analysing chest X-rays. The software application was developed by Dutch companies Thirona and Delft Imaging to support healthcare workers, like radiologists, in the fight against the virus. A team of researchers from the Netherlands reported that the detection of COVID-19 characteristics on chest X-ray images by CAD4COVID, is comparable to that of six independent expert readers. The tool is available free-of-charge to benefit public health surveillance and response systems worldwide.

Deep-learning software tool
Built on CAD4TB, an existing deep-learning software tool for detecting tuberculosis in chest X-rays, CAD4COVID was developed and validated by Thirona using 24.678 chest X-ray images. It was then tested on X-rays of 454 patients suspected to have COVID-19 pneumonia. Of these patients, 223 were COVID-19 confirmed cases and 231 tested negative for the virus. The test set was also independently and blindly evaluated by six radiologists with 5 to 24 years of experience. The research conducted by the Dutch hospital Radboud University Medical Center in collaboration with Jeroen Bosch Hospital and Bernhoven Hospital showed that the AI system performed comparably to the radiologists.

Support in triaging COVID-19 cases
Guido Geerts, CEO of Delft Imaging and Thirona, about the promising test results: "CAD4COVID-XRay is meant to provide support for radiologists and clinicians in chest X-ray assessment as part of the COVID-19 triage process. The publication of this research in a renowned journal like *Radiology* is a great milestone for our initiative. Results achieved by the AI-system compared to radiologist readings are noteworthy, because the presentation of COVID-19 pneumonia on chest X-ray can be highly variable, making differentiation from other diseases challenging. We expect that as we collect more data, the performance of the algorithm will improve even further."

Active in over twenty countries
Since its launch on March 31st, Delft Imaging and Thirona have made CAD4COVID-XRay available to more than twenty healthcare facilities across fifteen countries and also launched software for COVID-19 detection on CT scans. Dr. Henk Smits, radiologist at Bernhoven Hospital and one of the CAD4COVID users, comments: "Bernhoven Hospital has seen some of the highest numbers of COVID-19 cases in the Netherlands during the pandemic. At our hospital, a chest X-ray is done on all incoming patients. When the chest X-ray is normal or otherwise not suspect for COVID-19, a chest CT is performed. In the case of an abnormal chest X-ray, an RT-PCR test is conducted without the need for a CT scan, alleviating the burden on the CT. The CAD4COVID tool offers a second opinion for our radiologists: in the case of higher abnormality scores or abnormal areas on the heatmap, we can pay more attention to these cases and relevant lung areas."

About Thirona and Delft Imaging
Thirona is an innovative Dutch company specialised in artificial intelligence for medical image analysis. By creating intuitive and user-friendly products, it bridges the gap between academic ideas and clinical use. Thirona supports medical professionals in their daily tasks working with thoracic CT-scans (LungQ), chest X-rays (CAD4TB) and retinal scans (RetCAD). Established in 2014, Thirona has grown to become an important player in the medical field with innovative AI-solutions used in over forty countries worldwide. Delft Imaging is specialised in tuberculosis screening and dedicated to improving people's quality of life by means of its diagnostic imaging devices, e-health software and related services. See www.thirona.eu, www.delft.care and for more info on CAD4COVID www.delft.care/cad4covid.

Note to editors
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