GE Healthcare, Orange Healthcare and TheraPanacea collaborate with Assistance Publique-Hôpitaux de Paris and Société d'Imagerie Thoracique to create COVID-19 database and develop new AI-based tools

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- *The annotation of 10 000 CT chest scans performed on patients with suspected COVID-19 will support a clinical study of coronavirus*
- *The data collected will provide a database unprecedented in France to expand our knowledge of this disease and evaluate the contribution of artificial intelligence in the diagnosis and prognosis of the disease.*
- *The expertise gained can be applied to the management of other lung diseases.*

Paris, France -15 June 2020: GE Healthcare, Orange Healthcare and TheraPanacea plan a collaboration with Assistance Publique-Hôpitaux de Paris to create a database around chest imaging in patients suspected of being infected with SARS-Cov-2, the virus responsible for Covid-19.

This collaboration supports the STOIC project (ThOracian Scanner for the dIagnosis of Coronavirus19 pneumonia - COVID-19) led by Professor Marie Pierre Revel, head of the cardiothoracic imaging unit at Cochin Hospital, in Paris This major study on Covid-19 aims to gather 10,000 thoracic scans performed for suspected Covid-19 to better understand patients' responses and develop tools to automatically assess disease severity.

"The physician reading the CT scan is interested in identifying early signs of the disease and assessing its extent," explains Professor Revel. "But the scan also provides other patient data, allowing us to establish a severity score that can be correlated with the patient clinical course. All this data is now available and should help us better understand why some individuals develop a severe form of the disease.'

A group of 20 expert radiologists from the Société d'Imagerie Thoracique involved in this project are using a specific 3D image visualization web application, developed by GE Healthcare on the EDISON platform ™ and deployed by Orange Healthcare via a secure network access and health data hosting infrastructure.

"Cloud hosting services are resilient, scalable and highly secure. They enable the deployment of projects and the management of e-health applications guaranteeing security, business continuity and tailored support, meeting the challenges of the scientific community related to the availability and protection of personal health data," said Eric Pieuchot, director of Orange Healthcare.

This software enables the visualization of 3D images and remote annotation of lung lesions by bypassing the areas affected by the virus. It also enables them to provide information on vascular, pulmonary or overweight co-morbidity factors likely to influence the course of the disease, such as the appearance of arteries, the appearance of unaffected lungs, or the amount of fat in the chest wall.

It is hoped that this database will make it possible to develop artificial intelligence solutions in order, for example, to quickly and automatically quantify the extent and severity of injuries, to guide patient management, or to evaluate the effectiveness of the treatments implemented.

"The promise of artificial intelligence in the field of personalized and precision medicine shows the importance of working in an ecosystem. The open and inclusive approach of the Stoic project has made it possible to pool expertise to accelerate a project with high added value, in response to a societal expectation," says Baptiste Perrin, Director Imaging Software R&D at GE Healthcare.

Based on the first annotated data collected by the consortium, TheraPanacea has developed a pilot integrating artificial intelligence to quantify the disease and establish a short-term prognosis of patients based on their lung scans at hospital entry.

"Artificial intelligence has a crucial role to play in crisis situations such as the one we are experiencing", explains Professor Nikos Paragios, President of TheraPanacea "It must be part of the arsenal of doctors and caregivers to enable them to make the right decisions faster and for more patients, while keeping their critical thinking skills."

"This health crisis has forced us to mobilize fully and urgently, with people working round the clock whether engineers, radiologists, researchers, or project managers managing the regulatory aspects," emphasizes Professor Revel. "We have discovered models of collaboration that can be replicated for other public health imperatives or emergencies".

The data for the COVID-19 database will come from many public hospitals in Paris, but also from Rennes, Lyon and Strasbourg.

The STOIC project is supported by the patronage of several companies and foundations, all mobilized by the health emergency: Société Innothera, Société Guerbet, Fondation Centrale Supélec, Fondation de l'AP-HP pour la Recherche.

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