European Commission

EU RESEARCH AND INNOVATION PROJECTS IN ARTIFICIAL INTELLIGENCE

HEALTH

April 2021

The Commission is proposing rules to ensure AI technology is trustworthy and a set of actions to boost AI excellence and strengthen Europe's leading position in the development of human-centric, sustainable, secure and inclusive AI. The Commission will continue to fund AI-projects that benefits people, businesses and governments.

Some examples of EU-funded research and innovation projects using Artificial Intelligence in 'Health'.

NEURO-REHABILITATION TO AID RECOVERY OF COVID-19 INTENSIVE CARE PATIENTS

Patients in intensive care often leave with significant brain damage: about 30 % to 50 % will not return to work within three years. These people need neuro-rehabilitation but most healthcare systems do not provide it due to the lack of cost-effective solutions. The CDAC project, contributed to the development and clinical validation of innovative technologies that have already been used for the rehabilitation of over 3 000 stroke patients across Europe. More than 30 % of intensive care patients suffer delirium and cognitive impairment, a figure that rises to 80 % among mechanically ventilated patients such as the thousands treated for COVID-19.

EU contribution: € 2 470 000

AN INTEGRATED RESPONSE AGAINST COVID-19

The CORESMA project is deploying its previously established mHealth Surveillance Outbreak Response Management and Analysis System (SORMAS) in around 10 countries including Germany, Ghana, Nigeria, Nepal and Côte d´Ivoire covering more than 270 million people to obtain real-time clinical data on COVID-19 and improve risk assessment in different parts of the world. Using comprehensive modelling and artificial intelligence, they are investigating predictors for severe outcome, transmission dynamics and intervention effectiveness. Results will not only help tackle the pandemic but also provide a sustainable strategy for the future.

EU contribution: € 2 760 000

APPLYING DEEPLEARNING TO INVESTIGATE COVID-19

The COVID-19 pandemic has taught us that it is necessary to understand the virus's interaction with the host in order to design effective therapeutics. The RiPCoN project will analyse protein–protein interactions and protein–RNA interaction predictions between virus and host and feed this information into an existing deep learning model.

EU contribution: € 1 230 000

In May 2020, the Commission launched a second emergency call for coronavirus R&I, through which €128.2 million were awarded to 23 projects. In March 2021, a 24th project was added from the reserve list, bringing total funding to €133.4 million. Among these, 13 projects will receive a total of €55.1 million to develop Medical technologies, Digital tools and Artificial Intelligence analytics to improve surveillance and care at high Technology Readiness Levels. For example, the Covid-X project will bridge the gap between the European digital sector and healthcare providers; fast-tracking projects to market and save lives.

DEEP LEARNING TO IMPROVE MEDICAL IMAGING

Medical imaging has revolutionised diagnosis, treatment and follow-up, providing fundamental information on anatomy and physiology with very high spatial resolution. However, the imaging process can be stressful for patients, and it is difficult in the presence of motion. The Deep4MI project's objective is to advance and automate medical imaging so as to provide higher diagnostic and prognostic accuracy for clinical decision-making. Using machine and deep learning techniques, scientists will improve image acquisition, reconstruction and analysis to extract more clinical information from medical images and optimise results interpretation.

EU contribution: € 2 500 000

BREAKTHROUGH AIR-CLEANING TECHNOLOGY TO TACKLE INDOOR POLLUTION

The NATURBO project covers a breakthrough air-cleaning technology that boosts over hundred times green walls' air-purifying capacities, making plants clean everything traditional air filters cannot. Artificial intelligence remotely controls the Naturbo's operation and its environment via remote connection to a cloud server. Thus, Naturbo's functions are constantly adjustable when conditions like temperature or seasons change. This way, people in the space always have the best possible indoor air quality.

EU contribution: € 50 000

MINING BIG DATA FOR MEDICAL INSIGHT

Professor Nataša Pržulj works with Big Data to establish patterns and gain knowledge that could revolutionise how we treat diseases. Her ICON-BIO project's objective is to design holistic, integrative approaches for analysing heterogeneous molecular and clinical data. The work focuses on redefining accepted paradigms in data science, biology and medicine. She will show how to apply deeper insights in these disciplines to allow managing larger amounts of data than currently available to find new treatments for currently incurable diseases.

EU contribution: € 2 000 000

ROBOTS IN A RUSH: TIME-AWARE AI AIDS HUMAN-MACHINE INTERACTION

Time is an illusion, breakfast time doubly so. In future, human workers might not be alone in experiencing frenetic mornings thanks to EU-funded researchers of the TIMESTORM project who have equipped robots with human-like time perception capabilities – and tested them in the kitchen.

EU contribution: € 2 890 000

NEW TECHNIQUES HELP DECREASE THE RISK OF DEVELOPING AGE-RELATED EYE DISEASE

With life expectancy on the rise, more and more people are at risk of developing age-related eye diseases that could cause blindness. The key to treating and managing such diseases is to understand the risk factors involved. To help, the EYE-RISK project created a diagnostic panel for testing genetic predisposition to the disease. They also developed artificial intelligence methods to enable the incorporation of complex clinical data and laboratory results. Then, using advanced computational methods, including artificial intelligence, researchers developed an innovative risk prediction algorithm. With this innovative tool's help it can be predicted how likely a person is to develop certain eye diseases and show what can be done to lower this risk.

EU contribution: € 5 970 000

GETTING COMPUTERS TO UNDERSTAND WORDS AND CONCEPTS IN A REAL-WORLD CONTEXT

The ability to use language to refer to reality is crucial for humans, and yet it is very difficult to model. The AMORE project breaks new ground in Computational Linguistics, Linguistics, and Artificial Intelligence by developing a model of linguistic reference to entities implemented as a computational system that can learn its own representations from data.

EU contribution: € 1 500 000

POOLING RESOURCES TO MAKE BETTER DIAGNOSES OF RARE DISEASES

It is estimated that rare diseases affect more than 30 million people in the EU. However, with potentially between 6 000 and 8 000 rare disease entities, patient populations for each individual rare disease are small and dispersed, which makes international collaboration crucial. By pooling patient data and applying state-of-the art genetic methods, the Solve-RD project is improving the diagnosis of rare diseases that affect the lives of tens of millions of EU citizens.

EU contribution: € 15 360 000

MORE INFORMATION ON HOW
Research and Innovation contributes to AI policy

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