Can AI prevent the effects of a pandemic?

June 22 2021

Credit: Umea University

The coronavirus pandemic is the biggest crisis in a generation. Decision-makers have struggled to balance the state of health with the needs of society and the economy through the spread of the virus. Using AI in simulation methods has given a better, and more accurate result than conventional methods. A book about the research behind the successful method is now being released.

Frank Dignum's research on the simulation of the COVID-19 pandemic has attracted a great deal of attention. Now he is releasing a book—"Social Simulation in a Crisis," which shows how the AI-based model simulates the spread of the virus based on different scenarios. The model has proven to be extremely effective and the result has beaten conventional methods, in every way.

"I'm so happy that our research has given such great results, the purpose has always been to find a way for the public and companies to effectively make the right decisions," says Frank Dignum, AI researcher and author of the book.

With the aim to help

Simulating a crisis, or in this case a pandemic, requires more than just creating a simulation of the situation. In order for a simulation to be useful decision-makers need a result within a few days, in order to be able to take the correct measures as quickly as possible. The purpose of the new simulation model is not to produce more forecasts and figures, but rather to show different possible scenarios that can then form the basis for authorities' decisions.

"It is also of great importance to balance different factors mutually, depending on aspects of the situation," Frank Dignum continues.

The book, "Social Simulation in a Crisis," describes the creation of the simulation framework adapted for COVID-19, called ASSOCC. The book also highlights the usefulness of the model and explains the decisions that must be made along the way, as well as the trade-offs.

"There is no universal solution for how we should handle, for example, a pandemic. Each measure must be analyzed and checked against how the pandemic develops in a country, its infrastructure and its culture. But

with this model, it significantly eases the process," says Professor Frank Dignum.

The next step is to develop large-scale simulation models. This requires researchers to re-implement the models, making them even more efficient. Frank Dignum points out that it is also important to develop systems and technology that protect human integrity.

"Epidemiological models cannot integrate human behavior, the impact we have on each other and how it changes behavior over time. This can only be studied successfully in a social simulation environment."

More information: Read more and buy the book here: www.springer.com/gp/book/9783030763961

Provided by Umea University

Citation: Can AI prevent the effects of a pandemic? (2021, June 22) retrieved 17 April 2024 from https://medicalxpress.com/news/2021-06-ai-effects-pandemic.html

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