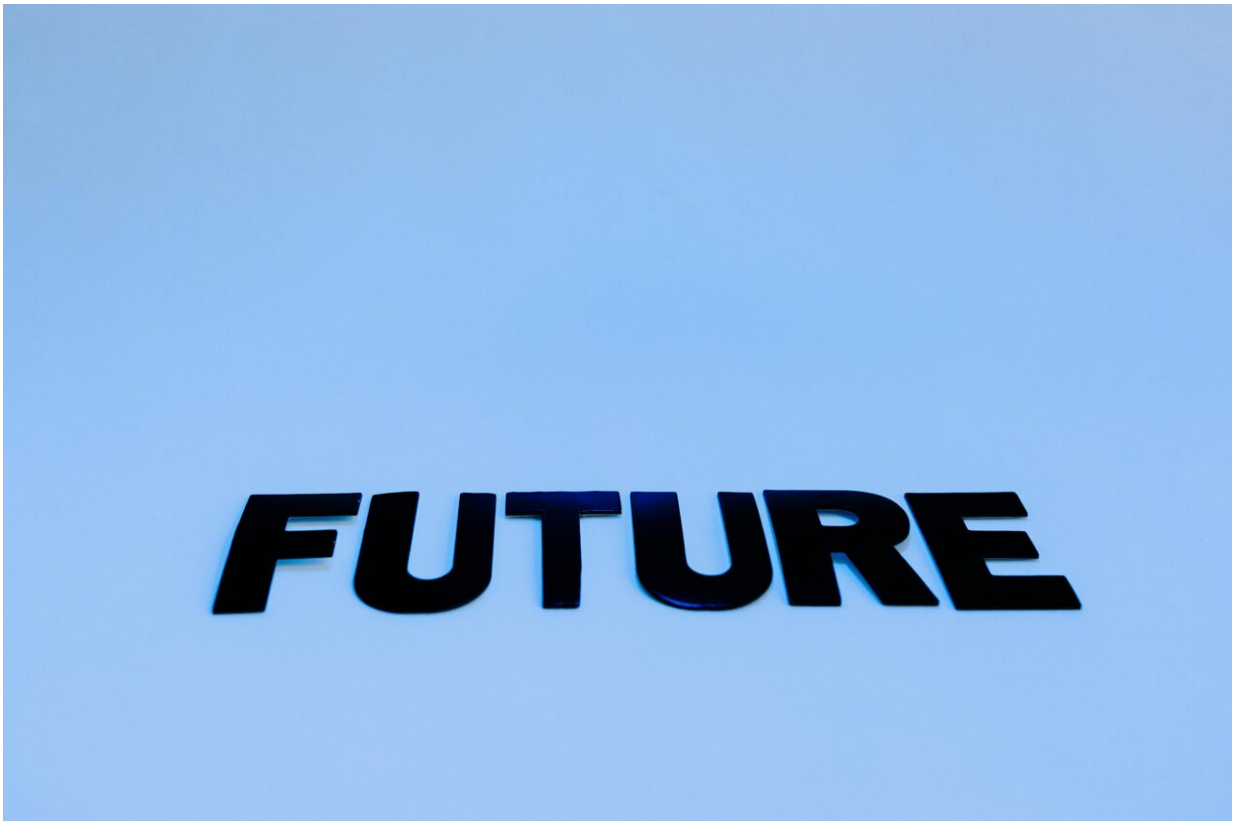


# How long you got? Danish AI algorithm aims to predict life, and death

March 21 2024

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Credit: Tara Winstead from Pexels

Researchers in Denmark are harnessing artificial intelligence and data from millions of people to help anticipate the stages of an individual's life all the way to the end, hoping to raise awareness of the technology's

power, and its perils.

Far from any morbid fascinations, the creators of [life2vec](#) want to explore patterns and relationships that so-called deep-learning programs can uncover to predict a wide range of health or social "life-events".

"It's a very general framework for making predictions about human lives. It can predict anything where you have [training data](#)," Sune Lehmann, a professor at the Technical University of Denmark (DTU) and one of the authors of a study recently published in the journal *Nature Computational Science*, told AFP.

For Lehmann, the possibilities are endless.

"It could predict [health outcomes](#). So it could predict fertility or obesity, or you could maybe predict who will get cancer or who doesn't get cancer. But it could also predict if you're going to make a lot of money," he said.

The algorithm uses a similar process as that of ChatGPT, but instead it analyzes variables impacting life such as birth, education, social benefits or even work schedules.

The team is trying to adapt the innovations that enabled language-processing algorithms to "examine the evolution and predictability of human lives based on detailed event sequences".

"From one perspective, lives are simply sequences of events: People are born, visit the pediatrician, start school, move to a new location, get married, and so on," Lehmann said.

Yet the disclosure of the program quickly spawned claims of a new "death calculator", with some fraudulent sites duping people with offers

to use the AI program for a life expectancy prediction—often in exchange for submitting [personal data](#).

The researchers insist the software is private and unavailable on the internet or to the wider research community for now.

## Data from six million

The basis for the life2vec model is the anonymized data of around six million Danes, collected by the official Statistics Denmark agency.

By analyzing sequences of events it is possible predict life outcomes right up until the last breath.

When it comes to predicting death, the algorithm is right in 78 percent of cases; when it comes to predicting if a person will move to another city or country, it is correct in 73 percent of cases.

"We look at early mortality. So we take a very young cohort between 35 and 65. Then we try to predict, based on an eight-year period from 2008 to 2016, if a person dies in the subsequent four years," Lehmann said.

"The model can do that really well, better than any other algorithm that we could find," he said.

According to the researchers, focusing on this age bracket—where deaths are usually few and far between—allows them to verify the algorithm's reliability.

However, the tool is not yet ready for use outside a research setting.

"For now, it's a research project where we're exploring what's possible and what's not possible," Lehmann said.

He and his colleagues also want to explore long-term outcomes, as well as the impact of social connections have on life and health.

## **'Public counterpoint'**

For the researchers, the project presents a scientific counterweight to the heavy investments into AI algorithms by large technology companies.

"They can also build models like this, but they're not making them public. They're not talking about them," Lehmann said.

"They're just building them to, hopefully for now, sell you more advertisements, or sell more advertisements and sell you more products."

He said it was "important to have an open and public counterpoint to begin to understand what can even happen with data like this".

Pernille Tranberg, a Danish data ethics expert, told AFP that this was especially true because similar algorithms were already being used by businesses such as insurance companies.

"They probably put you into groups and say, 'Okay, you have a chronic disease, the risk is this and this'," Tranberg said.

"It can be used against us to discriminate us so that you will have to pay a higher insurance premium, or you can't get a loan from the bank, or you can't get public health care because you're going to die anyway," she said.

When it comes to predicting our own demise, some developers have already tried to make such algorithms commercial.

"On the web, we're already seeing prediction clocks, which show how

old we're going to get," Tranberg said. "Some of them aren't at all reliable."

**More information:** Germans Savcicens et al, Using sequences of life-events to predict human lives, *Nature Computational Science* (2023).

[DOI: 10.1038/s43588-023-00573-5](https://doi.org/10.1038/s43588-023-00573-5)

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Citation: How long you got? Danish AI algorithm aims to predict life, and death (2024, March 21) retrieved 9 May 2024 from <https://techxplore.com/news/2024-03-danish-ai-algorithm-aims-life.html>

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