
Big Data: Can A Computer Tell When Your Time Is Up?



Statisticians, computer scientists and medics from the [University of East Anglia](#) are launching a new project to predict how long you will live.

They will use 'Big Data' to predict life expectancy – and particularly how various chronic diseases and their treatments impact longevity.

While many people may not want to know how long they have left, the team say the [research](#) will bring practical, financial and medical benefits – such as helping people plan for retirement, and knowing how particular drugs such as statins or beta-blockers affect longevity.

The four-year project has been launched thanks to a £800,000 (€1.01 mln) funding boost from the Institute and Faculty of Actuaries ([IFoA](#)).

"People around the world are living longer. We want to develop software tools that use Big Data routinely collected by healthcare providers to forecast longevity," said lead researcher Prof Elena Kulinskaya from UEA's School of Computing Sciences.

"When we talk about Big Data what we mean is data that is vast, complex and difficult to analyse. We want to be able to use it to see statistical life expectancy trends, based on large-scale population-based data collected over the long term.

"We want to identify and quantify the key factors affecting mortality and longevity, such as lifestyle choices, medical conditions and medical interventions.

"We are particularly interested in understanding how various chronic diseases and their treatments impact life expectancy," she added.

Researchers from UEA's School of Computing Sciences will work alongside medical and health scientists from Norwich Medical School, with assistance from technical experts at Aviva.

They will develop new statistical methods to model mortality, find trends in morbidity, and assess life expectancy, based on Big Data.

And they say that there are many benefits to knowing how long you might live.

"Pension contributions were recently freed, so now people can take their pension pots out and use them as they wish. But to be able to plan for retirement, and to understand how much you can spend, it is good to have some idea of your life expectancy. Our estimates of life expectancy will only be true on average, not at the individual level," Prof Kulinskaya explained.

"This is exactly what we are trying to do for a number of chronic medical conditions. We also want to be able to estimate how some popular drugs, such as statins or beta-blockers, may affect longevity.

"As well as being useful for people planning retirement, it is also important for GPs deciding whether and when to prescribe particular drugs or how to advise their patients. It could also benefit local health authorities planning resources, and insurance companies deciding on the size of pension you can buy with your pension pot."

The research project, entitled 'Use of big health and actuarial data for understanding longevity and morbidity risks' is one of three research programmes nationally to receive funding from IFoA, after proposals involving more than 100 institutions from 20 countries.

"We set out some of the key challenges in actuarial science and were overwhelmed with the response from the actuarial community in how it would seek to address those challenges," explained Prof Mark Cross, chair of the IFoA's Research and Thought Leadership Committee, adding that this work will become the foundations of the Institute's newly expanded Actuarial Research Centre.

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