Related programmes and teams
Defence and security
Health and medical sciences
Research Engineering

"The Alan Turing Institute has played an instrumental role in the development of the NHS COVID-19 app. The app has now been downloaded over 23 million times, and the work of the Turing has made it far more effective at measuring distance and risk, better protecting its users and their communities.

"It is also thanks to the work the Turing has done to measure the efficacy of the app that we know it averted an estimated 600,000 COVID-19 cases between October and December 2020 alone, and continues to play a huge role in protecting the public as we move out of lockdown."

Baroness Dido Harding
Former Executive Chair
NHS Test and Trace

Improving the accuracy of the NHS COVID-19 app

Turing researchers have been advising the Department of Health and Social Care on the development of the NHS COVID-19 app. Rolled out across England and Wales in September 2020, the app uses the Google-Apple Exposure Notification system, in which the phone sends Bluetooth Low Energy signals to nearby app users in order to detect when two users have come into close contact.

In October 2020, an update was released which included improvements to the app's algorithm for measuring the distance between two phones – work that was led by Mark Briers, the Turing's Programme Director for Defence and Security, and the app's lead scientist. The **updated algorithm**, which makes use of a statistical process called an 'unscented Kalman filter', more accurately calculates the risk that the phone's user has been in contact with a COVID-positive person, meaning that the app can better identify those who need to self-isolate.

A statistical analysis by Briers and colleagues published in **Nature** in May 2021 estimated that, for every 1% increase in app users, the number of coronavirus cases in the population can be driven down by around 2%, due to people self-isolating following contact with an infected person. Briers continues to lead on the app's development, and is currently exploring the idea of modifying the app to provide different levels of isolation advice, depending on which variant of the virus the user has contracted.