The Alan Turing Institute

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Impact story

Understanding urban air quality

Turing researchers are working with the Greater London Authority to use machine learning and statistical methodology to better analyse air pollution sensor data, design better policy interventions, and improve urban quality of life.

- Poor air quality in cities poses a threat to health and life expectancy. More than 9,000 Londoners a year die early due to air pollution.
- A revolution in air-quality sensors means pollution can be tracked at thousands of locations in the city, but such sensor networks produce an overwhelming amount of data of varying quality.
- Researchers from the Turing, the University of Warwick and partners including the Greater London Authority, developed algorithms, data science platforms and statistical methodology to make sense of this data deluge.
- The project benefits from being part of navigation specialists Waze's 'Connected Citizens Program', providing real-time traffic data.
- With a better understanding of air pollution in a complex urban environment like London, it will be possible to design better policy interventions, accurately evaluate interventions, and reduce the health impacts of pollution.
- The group is forming a real-time monitoring network that enables high-resolution air quality forecasting. The goal is a 48-hour pollution forecasting system that anyone with a smartphone can use.

Impact

- Machine learning methods developed for 'big data'-scale problem with impact on urban quality of life.
- Digital tools produced will inform policy-makers to make targeted interventions that reduce pollution in key areas.
- 2019–20 is the project's impact year for analyses, conclusions and interventions.

"Working with the Turing will continue our efforts to make life better for all Londoners."

Theo Blackwell, Chief Digital Officer, Greater London Authority

Turing Fellow Theo Damoulas presenting progress on the project to the GLA and the London Boroughs at City Hall.