

# Data Science in the News

## *Webinar: What data can tell us about COVID19*

14 April

12pm - 1pm

### Our panellists

Distinguished Professor Kerrie Mengersen - Director of the QUT Centre for Data Science and Fellow of the Queensland Academy of Arts and Sciences. Kerrie will be the moderator.

**Professor Adrian Barnett** - Professor at the QUT School of Public Health and Social Work.

**Professor Laurie Buys** - Director of Healthy Ageing Initiative at UQ Faculty of Healthy and Behavioural Sciences.

**Professor Lidia Morawska** - Professor at the QUT School of Earth and Atmospheric Sciences, Director of International Laboratory for Air Quality and Health and Co-Director of the Australia-China Centre for Air Quality Science and Management.

**Associate Professor Richi Nayak** - Program Leader of Applied Data Science at the QUT Centre for Data Science and internationally recognised expert in data mining and web intelligence.

### More about the panel session topics

**Professor Adrian Barnett** - Using microsimulation to model COVID-19 infections including uncertainty.

Models of COVID-19 infections numbers over time often use mathematical equations to model the flow of people from healthy to infected and possibly to death. An alternative approach is to simulate the flow of people using micro-simulations of individuals. These are far more computer intensive but help to show the uncertainty in prediction numbers. They can also be easily adapted to incorporate individual characteristics, such as age and comorbidity.

**Professor Laurie Buys** - COVID-19: What has age got to do with it?

The COVID-19 has been promoted widely by the media and governments as a serious problem for people over 60 years, who purely by their age are at greater risk of serious illness and death. I will explore whether data supports the assertion that age is a key factor in death and whether the answer to that question matters to Australia.

**Professor Lidia Morawska** - Will Big Data help uncover the role of COVID-19 airborne transmission?

The role of long-range airborne transmission of COVID-19, versus close contact transmission, is one of the key questions the world asks, and has implications for managing the pandemic. After SARS1, retrospective modelling studies clearly pointed out the significance of this transmission route and aerosol science has provided evidence and explained the mechanism behind droplet formation from human expiratory activities. However, it is extremely difficult to conduct experimental studies on

infectious droplets during the pandemic. Could the data on the locations, patterns, contacts, etc provide an answer?

**Associate Professor Richi Nayak** - Understanding the dynamics of social media conversation topics on COVID-19

Analysis of social media conversation on COVID-19 can provide many insights. Text mining techniques can be applied (1) to understand how the topics are distributed over time and space (location) and their popularity; (2) to understand emotion expressed in those topics (i.e. identifying positive and negative discussion); and (3) to identify triggers leading to a sudden peak in the discussion from topic distribution.