



Institute for Social Science Research

SOCIAL SCIENCE OF INNOVATION & TECHNOLOGY

WHAT WE DO

Technological advances such as Artificial Intelligence (AI) and innovations in biomedical science are set to disrupt social and economic structures. Researchers from the Institute for Social Science Research (ISSR) are at the forefront of work with industry and governments to document the societal benefits and develop methods and strategies for managing adverse societal impacts. For example, our ARC Centres of Excellence researchers are exploring digital life and digital futures for children and families and the role of technology in reducing entrenched disadvantage.

ISSR researchers also use advanced analytics on big social service data sets to improve risk identification and targeting of services, demonstrating how these technologies can be used for benefit in the public sector as well as the private sector. We lead the use and development of new analysis methods (e.g. actigraphy), new technologies (e.g. light sampling approaches) and technology-based interventions (e.g. the use of wearables to support behaviour change).

ISSR researchers work with a range of technological disciplines to address the social and human contexts of science and innovation including ethical concerns and social licence.



**THE UNIVERSITY
OF QUEENSLAND**
AUSTRALIA

CREATE CHANGE

OBJECTIVES

- Evaluating the social impacts of technology including AI and ubiquitous monitoring
- Co-developing socially informed and human-centred applications
- Democratising science, innovation and technology

IMPACT THEMES

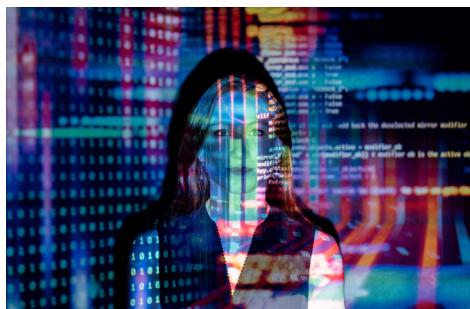
- Social licence, ethics and governance
- Machine learning for social and health data analytics
- Social benefits and risks of emerging technologies
- Tools and technological solutions for social good

LEAD RESEARCHERS

- Professor Rhema Vaithianathan
- Professor Simon Smith
- Professor Tim Reddel
- Associate Professor Abdullah Mamun
- Associate Professor Wojtek Tomaszewski



PROJECT HIGHLIGHTS



Exploring the use of predictive analytics to improve practice and outcomes in child welfare in Queensland

Queensland Department of Child Safety, Youth and Women, 2019-2020

ISSR was commissioned by the Department of Child Safety, Youth and Women to identify potential opportunities for how the department may better use its data together with new methods of predictive risk modelling to improve child safety outcomes. An options paper was produced to support and inform future departmental strategies.

The research team undertook a series of discovery meetings and workshops, and a thorough review of procedures to understand the data and business processes of the Department. This project identified several potential future opportunities for predictive risk modelling to support decision making including at the point of intake and supervision.

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Reducing crash risk for young drivers: A randomised control trial to improve sleep

National Health and Medical Research Council (NHMRC), 2019-2021

Road trauma is the number one cause of death and permanent disability for young Australians aged 18-24. Sleepiness (or “fatigue”) directly accounts for at least 20 per cent of all road fatalities.

A team of ISSR researchers designed a randomised control trial to test a new program that aims to investigate sleep, nutrition, activity and transport in young adults. The program addresses the social component of sleep behaviours, which determines behavioural decisions about bedtimes and sleep priorities. It draws on robust behaviour change strategies, which are reinforced with targeted digital education, motivation and feedback components.



The team will capture a combination of on-road and at-home measures, using actigraphy (sleep trackers) and accelerometry devices in driver's own cars to record physical activity and driving performance. In the laboratory, driver's will use of the new ISSR STISIM Driving simulator. This simulator, with wrap around screens, steering wheel and other driving controls, has been used by the team for fatigue detection, to simulate complex traffic environments, and for 'tailgating' trials. Each driver's physiological responses will also be measured, including brain activity, heart rate and eye movement with eye tracking glasses.

This study is expected to yield a significant advancement in knowledge about effective interventions in sleep, nutrition, activity and transport, particularly in young people. The long-term impact of this research may be a reduction in road trauma in young drivers, and a reduction in the medical, industrial and social costs associated with trauma care.

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