Post-doctoral fellowship in network modelling and optimization of infectious disease at The University of New South Wales (posted 22/07/13).

A one year fellowship starting in 2014, with a possibility of extension is available for a suitably qualified candidate to work on the topic of emerging infectious diseases. The research will focus on the development of optimization based network models for predicting outbreak behaviour, and developing control measures. The student will be part of a multidisciplinary research team which includes the School of Civil and Environmental Engineering and the NHMRC Centre of Research Excellence: National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases.

The role: This study is motivated by the need to track viruses through space and time in order to understand outbreak behaviour of emerging infectious diseases, and aid in the implementation of real-time containment strategies. Most epidemiologic models predict expected future potential outbreak scenarios; however, they are not able to reconstruct the contagion process of an ongoing outbreak to reveal information about the current state of the network. Thus, there exists a gap in the literature which calls for scenario specific disease prediction models. Recent advances in social and activity based travel modelling and real time case reporting offer invaluable information which can be utilized during outbreaks to track the infection process. As such, it is critical to develop methods which can exploit this data in aiding the prevention and mitigation of contagion episodes.

The person: We are seeking an applicant awarded a PhD in maths, physics, engineering or a related field with a quantitative background in network modelling and optimization. Consideration will also be given to applicants who do not have a relevant disciplinary background, but who have been working in the field for at least 2 years. The scholarship is available to Australian citizens, and Australian permanent residents.

Contact: If you are interested in this position or would like additional information, please contact Dr. Lauren Gardner on l.gardner@unsw.edu.au.