HOW DO WE MEET HEALTHCARE DEMANDS?
CONNECT: SMART SEMINAR SERIES

SEMINAR: Healthcare planning meets GIS: Locating radiotherapy centres to meet changing demand in space and time.

PRESENTERS: Rohan Wickramasuriya & Nagesh Shukla  
Research Fellows, SMART Infrastructure Facility

WHERE: 6.105
WHEN: 3pm, Monday, 23rd March 2015
RSVP: 20th March to smart-facility@uow.edu.au

TOPIC
This research proposes an integrated modelling process for location planning of radiotherapy treatment services which is based on cancer incidence and road network-based accessibility. Previous research efforts assessed travel distance/time barriers affecting access to cancer treatment services, as well as epidemiological studies that showed that cancer incidence rates vary with population demographics. It is established that travel distances to treatment centres and demographic profiles of the accessible regions greatly influence the demand for cancer radiotherapy (RT) services. However, an integrated service planning approach that combines spatially-explicit cancer incidence projections and the placement of new RT services based on road network-based accessibility has never before been attempted. This research work presents this novel methodology for the location planning of RT services and demonstrates its viability by modelling NSW cancer incidences rates for different age-sex groups based on observed cancer incidence trends; estimating the road network-based access to current NSW treatment centres; and, evaluating the possible locations of the treatment centres within New South Wales, Australia.

BIO
Nagesh: Dr. Nagesh Shukla is a Research Fellow in the area of Industrial & Systems Engineering domain, particularly in the areas of data analytics, simulation modelling and computational intelligence. He has research experience in working with industries and government agencies on large scale projects. He has contributed more than 25 research publications in conferences, journals, book chapters, and technical reports. He has a patent on healthcare systems data analysis in USA Patent Office based on his PhD research work. Dr. Shukla is part of infrastructure simulation and modelling team at SMART, University of Wollongong, where he commenced in November 2011 having come from the UK. In 2013, he has been named as one of the Chief Investigators to support modelling work in NHMRC funded project where lifetime simulation models of drug users in NSW is being developed for cost benefit analysis of treatment mix available for drug addicts. He is involved in data analytics and modelling projects at the SMART Infrastructure Facility.

Rohan: Dr. Rohan Wickramasuriya is a Research Fellow in Geomatics Engineering at the SMART Infrastructure Facility. His research focuses on applying geosimulation, spatio-temporal analytics, geo-visualisation and remote sensing techniques to understand complex dynamics in urban and regional systems. He has over 10 years of experience in applied geospatial research, particularly in integrated land use and transportation modelling. At SMART, he leads the research group ‘Advanced Geomatics for Urban and Regional Planning’, serves as the principal developer of the SMART Infrastructure Dashboard, and acts as the technical lead of the project ‘Regional Dynamic Planning Tool for the Illawarra’. Prior to joining SMART, he has worked as a Geospatial Specialist at a number of leading international research institutes including the Research Institute for Knowledge Systems in The Netherlands and the International Water Management Institute in Sri Lanka.

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