



WESTERN SYDNEY
UNIVERSITY

School of Computer, Data and Mathematical Sciences

HDR Seminar 18

Program

26 May 2022

<u>Workshop Session</u>	
10:00 am - 10:10 am	Start
10:10 am - 10:20 am	Welcome: A/Prof Dongmo Zhang
10:20 am - 10:30 am	UoW Team Research introduction WSU Team Research introduction
10:30 am - 11:00 am	Students Presentations (5 mins each) Mr. Jiahong Zhao (PhD student): When Multimedia Processing Meets Artificial Intelligence. Mr. Chng Wei Lau: Virtual Reality for the Observation of Oncology Models (VROOM): Immersive Analytics For Oncology Patient Cohorts Ms. Zhonglin (Jolin) Qu: Genomic Data Visual Analytics in Virtual Reality Environment: A Usability Study Jing NG: Effects of Egocentric Versus Exocentric Views on Health Data in Virtual Reality Ashlee Gronowski: Effects of AR and VR Immersive Environment on Health Data
11:00 am - 11:30 am	Research Discussion
11:30 am - 12:00 pm	Lunch Break

<u>Seminar Session</u>	
12:00pm - 12:10pm	Briefing: A/Prof Dongmo Zhang Topic: Policy update and announcements
12:10pm - 12:35pm	Invited Speech Topic: Transport Data Analytics and Visualisation Speaker: Dr. Bobby Du (Senior Lecturer)
12:35pm - 1:00pm	Invited Speech Topic: Towards the Validation of VR-HMDs for Education- Medical Education case study Speaker: Dr. Shiva Pedram
1:00pm - 1:25pm	Invited Speech Topic: Enabling Genomic Data Analytics with Virtual Reality Speaker: Assoc. Prof. Quang Vinh Nguyen
1:25pm - 1:30pm	Closing

Venue: EB.G.36 and Online Zoom

Meeting ID: 859 9166 3307

Password: HDR

Next Event: 23 June 2022

Transport Data Analytics and Visualisation

Speaker: Dr. Bobby Du (Senior Lecturer)

Abstract:

With increasing availability of a diversity of transport data sources, transport planning and operation management are facing big challenges and opportunities to transform from deterministic and pre-scheduled services to dynamic and on-demand solutions. This presentation will firstly introduce a wide range of data sources (e.g., smart card data, GTFS data, travel survey data, road accident record, vehicle trajectory, land use information) commonly used in transport research, and then use multiple real-life projects to demonstrate how such data sources, either in a separate or fused format, can help to understand people's travel behaviour and heterogeneous preferences, optimise public transport operation and management, and identify potential black spots to improve vulnerable road users' safety.

Biography:

Dr. Du is a Senior Lecturer of Transport and Logistics Modelling and Leader of Future Transport & Mobility group with the SMART Infrastructure Facility at the University of Wollongong, Australia. He received his PhD in Transportation Engineering from Nanyang Technological University in Singapore in 2015. He has authored over 40 peer-reviewed journal and conference papers, and many of them appeared in top-tier journals and conferences in the fields of Transport & Logistics, such as Transportation Research Part B: Methodological, Transportation Research Part E: Logistics and Transportation Review, and IEEE Transactions on Intelligent Transportation Systems. He has been a recipient of the Fred Burggraf Award from the Transportation Research Board, USA, and the Best Paper Award of the 19th IEEE International Conferences on Smart City.

Towards the Validation of VR-HMDs for Education- Medical Education case study

Speaker: Dr. Shiva Pedram (Research Fellow)

Abstract:

The latest technological advancements in the field of Virtual Reality (VR) have created new opportunities to use VR as a training tool in various context specially for medical education. Despite the growing interest in the use of VR as a training tool, a commonly identified gap in VR-training is the confidence in the long-term validity of the applications. This presents decision-making challenges for those seeking to adopt, implement and embed such systems in teaching practice. It is crucial to take a wider socio-technical systems perspective to understand how the holistic training system can be engineered and validated effectively as fit for purpose, through distillation of a generic set of requirements from the literature review to aid design specification and implementation, and to drive more informed and traceable validation of these types of systems.

Biography:

Shiva is an engineer and an researcher with a PhD in Computing and Information Technology. Shiva's expertise is in Human-Computer Interaction and User Experience research (UX) with a great interest in emerging technologies such as VR/AR and XR. In the past 10 years she has been involved in number of funded industry-based projects including "Assessing the feasibility of VR as a training tool for high risk industries- in the context of NSW mining industry", "Using VR to teach children about the impact of climate change", "Using VR for medical education and remote rehabilitation" and more. Along with having experience simulation software operator, she has been teaching and tutoring several management, computer networking, telecommunication engineering, and simulation subjects within the University of Wollongong.

Enabling Genomic Data Analytics with Virtual Reality

Speaker: Assoc. Prof. Quang Vinh Nguyen

Abstract:

Virtual Reality (VR) environment has been gradually gained traction in data analytics thanks to its less distraction, more space and natural interactions integration. VR technologies could provide significant improvement on scientific genomic data visualisation and interpretation, especially when merging with machine learning models. This presentation presents a mile stone how VR has been used in genomic data analytics. In the project, we learn from our existing research works on visualisations and machine learning, and extract essential requirements based on the feedback from the end users such as clinicians and researchers to enhance the genomic data analytics in virtual and mixed reality environments

Biography:

Dr. Quang Vinh Nguyen is associate professor in Visual Analytics at the School of Computer, Data and Mathematical Sciences, Western Sydney University. Dr. Nguyen's research focuses on finding effective visualisations to support the analysis of large and complex datasets, particularly genomic, flow cytometry and biomedical data, graph and relational data and other application-based data. For his academic career, he has authored and co-authored more than 100 refereed publications, including edited book, book chapters, journals and conference papers relating to this research field. He has received multiple research funding. He has been successful (co)supervised several research students.