Rapid Response Robotic Tool for Critical Water Mains Condition Assessment

By Eng. Prof. Gamini Dissanayake (UTS, Chief Investigator), Eng. Dammika Vitanage (Chair, Program Committee Sydney Water), Eng. Jeya Rajalingam (Principal Engineers Sydney Water, Project Manager)

Eng. Prof. Gamini Dissanayake is the James N Kirby Distinguished Professor of Mechanical and Mechatronic Engineering at University of Technology, Sydney (UTS). He graduated in Mechanical/Production Engineering from the University of Peradeniya, Sri Lanka. He received his M.Sc. in Machine Tool Technology and Ph.D. in Mechanical Engineering (Robotics) from the University of Birmingham, England. He taught at University of Peradeniya, National University of Singapore and University of Sydney before joining UTS in 2002. At UTS, he founded the UTS Centre for Autonomous Systems; currently a team of seventy staff and students are working in Robotics. His main contributions to robotics has been in Simultaneous Localisation and Mapping, which has resulted in one of the most cited journal publications in robotics. He has also been involved in developing robots for a range of industry applications including cargo handling, disaster response, mining, infrastructure maintenance and aged care.

Eng. Jeya Rajalingam has over 30 years’ experience in the UK, Australia and Sri Lanka and has specialised in water supply management. For the last twelve years she has been in charge of the condition assessment of pressurised water pipelines and has contributed to the development of Sydney Water’s risk assessment based strategy for renewals and methodologies to identify pipes needing intervention. She has won many aqua awards in Sydney water for her contribution and awarded a Lawrence Choy Memorial Fellowship funded by TRILIT in UK visiting major water utilities on behalf of the research project and Sydney Water. She is familiar with and has trialled various world’s current technologies and processes to carry out condition assessment and understands their benefits and limitations. She has worked closely with several universities in the Advanced Condition Assessment and Pipe Failure Prediction research Project which leads the development of tools and process improvements for the water industry.

Eng. Dammika Vitanage graduated in 1980 with BSc (Hons) in Civil Engineering from the University of Peradeniya Sri Lanka. Currently the Asset Infrastructure Research Coordinator for Sydney Water. More than 39 years of water industry experience in asset management, operations, maintenance, and water quality. This includes more than 15 years in managing Research and Development. Dammika is the water industry lead for the innovative international $3M sensing innovation for leaks and breaks for water pipes currently in progress. Also the water industry lead for the $24M CRC Project funded smart lining and coatings project. The water industry representative for a completed international IWA Applied R & I Award winning global research collaboration, the $16.5M Advanced Condition Assessment and Pipe Failure Prediction Project. Member of the Steering Committee for the completed international IWA Applied R & I Award winning $20M ARC Linkage Project on Corrosion and Odour in Concrete Sewer Systems. Currently manages the R&D partnerships with Sydney Water’s Water Filtration Plant Build Own Operators. Former Program Leader Distribution Systems for the Cooperative Research Centre for Water Quality and Treatment.
Analytical Solution for the Consolidation Behaviour of Deep Cement Mixed Column–Improved Ground

By Eng. Dr. Manasi Wijeratna

Eng. Dr. Manasi Wijerathna is an innovative and independent thinking young professional, exploring the capability of new technology in assisting real life engineering applications. She obtained her bachelor’s degree in Civil Engineering with First Class Honours and her Masters of Science degree in Engineering, from University of Moratuwa. She completed her PhD from Western Sydney University (WSU) in 2018. Currently she is working as a Geotechnical Engineer at GHD Group, Australia and also as a visiting lecturer at WSU. She is an author of more than 20 technical publications.

Mobile Network End to End Performance Monitor

By Eng. Indaka Raigama

Eng. Indaka Raigama is an engineering professional graduated from the University of Moratuwa, Sri Lanka, specialising in software systems and electronics design. In his early career Indaka worked on DSP based image processing located in Sri Lanka and Japan. After graduation in 1998, he played diverse roles from a software engineer to a delivery manager at Virtusa in Sri Lanka, India and USA. Indaka headed the South Asian operation of Navantis Inc. Canada, a software solutions provider as the CEO, Asian Operations for 11 years. He is now spearheading iTelaSoft Pty Ltd as the Co-Founder and CEO. iTelaSoft is a Technology Innovation Agency focused on FinTech, IoT & Embedded Devices, Machine Learning, and End-to-end Software Product Engineering with its offices in Australia, Sri Lanka and UK.

Chemical Clogging of Granular Media under Acidic Groundwater Conditions-Experimental Simulation

By Eng. Bandula Medawela

Eng. Subhani Medawela obtained her bachelor’s degree with First Class Honours in Civil and Environmental Engineering from University of Ruhuna in 2015. She worked at department of civil engineering at the University of Ruhuna as a temporary lecturer, prior to commencing her doctoral studies in 2016, at the Australian Research Council, Centre of Excellence for Geotechnical Science and Engineering (ARC CGSE) at the University of Wollongong, under the supervision of Distinguished Professor Buddhima Indraratna. In her doctoral studies, she is researching on Permeable Reactive Barriers (PRBs) in Acid Sulphate Soil Floodplains in Australia.
Intelligent Sensing and Robotics for Sewer Condition Assessment

By Eng. A/Prof. Sarath Kodagoda

Eng. Associate Professor Sarath Kodagoda is the Vice President of the Association of Robotics & Automation Association (ARAA) and ambassador to the NSW Smart Sensing Network (NSSN). He is the Deputy Director of the Teaching and the Research Integration for Centre for Autonomous System (CAS) and Coordinator of the Mechanical and Mechatronics program at University of Technology (UTS). He is instrumental in the development of the Mechatronics courses at UTS and received three teaching wards including the prestigious UTS Medal for teaching & research integration and Australia wide OLT awards. He has over 20 years of experiences in robotics, published over 150 papers, received $6M industry grants and 5 research awards including state, national and international awards. He is co-chair of the first ever robotic Roadmap for Australia, which was launched in 2018. He has supervised 12 PhD students for successful completion. He has been a keynote speaker, conference general chair, session chair, editorial member, associate editor, member of program committees and reviewer of prestigious robotics conferences and journals. He has contributed to 20 media articles including ABC TV, The Australia and The Sydney Morning Herald. He completed his bachelor’s degree in Electrical Engineering from University of Moratuwa in Sri Lanka and his MEng and PhD from Nanyang Technological University in Singapore.

Yalut-Privacy-Aware Cost Efficient Mobile Social Networking Platform

By Eng. Dr. Kanchana Thilakarathna

Eng. Dr. Kanchana Thilakarathna is a Lecturer in Distributed Computing at the School of Computer Science, The University of Sydney and is a member of the Centre for Distributed and High Performance Computing. Prior to joining the University of Sydney in 2017, Dr. Thilakarathna was a Research Scientist at the Information Security and Privacy Group at Data61-CSIRO. He received B.Sc. Engineering degree with First Class Honours specialising in Electronics and Telecommunications Engineering from University of Moratuwa, Sri Lanka and PhD in Electrical Engineering and Telecommunications from The University of New South Wales with the “Malcolm Chaikin Prize” for the Best PhD Thesis at Faculty of Engineering, UNSW. Since then, he has been actively working on research and development in wearable and mobile networks, cyber-security and distributed computing and has published a number of papers in highly reputed academic conferences and journals. His recent research activities on encrypted video traffic classification, IoT security and drone security are funded by Defence Science and Technology Group (DSTG), NSW Defence Innovation Hub, Data61-CSIRO and NSW Cyber Security Network. Dr. Thilakarathna is also a recipient of the Google Faculty Awards 2018 and the 2018 Dean’s Award for Industry Collaboration at the Faculty of Engineering and IT, The University of Sydney.
Evaluating the Effect of GGBFS in Alkali Silica Reaction in Geopolymer Mortar with Accelerated Mortar Bar Test

By Eng. Dinesh Mahanama

Eng. Dinesh Mahanama is a Civil Engineer graduated from University of Moratuwa in 2013. He joined Central Engineering Consultancy Bauera in Sri Lanka shortly after graduation and worked as a structural design engineer specializing in high rise buildings in Sri Lanka. He is currently in completion of his doctoral studies at University of New South Wales and his research work includes durability of concrete, structural designing of concrete elements and geopolymer technology.

An Innovative Approach of Using Continuous Impedance-Graded Metallic Composite System for Attenuation of Stress Waves

By Eng. Lakshitha Fernando

Eng. Lakshitha Fernando obtained his bachelor’s Degree in Civil Engineering with First Class Honours, in 2015 and Master’s Degree (major component research), in 2016, from the University of Moratuwa. While reading for the Master’s Degree, he also worked as a research assistant in a joint research project on precast building systems, between the University of Moratuwa and National Building Research Organisation (NBRO). He is currently pursuing his PhD at The University of Sydney. In his Doctoral studies, he is developing a multi-metallic composite system to resist the effects of high energetic dynamic loads such as blasts and impact.