



# The Smart Infrastructure Summit 2023 & The 15th Australian Network of Structural Health Monitoring Workshop Day 1, 23rd November

Time	Program Details
8:00am - 8:30am	<b>Registration</b> <b>Venue: The Banquet Centre, 252 Flinders St, Townsville</b>
8:30am - 8:40am	Welcome and Smart Infrastructure in the Context of Net Zero <b>Dr Govinda Pandey, CEO - Rockfield, Chair - Organising Committee</b>
8:40am - 8:45am	Opening Remarks <b>Cr Jenny Hill, Mayor of Townsville City Council</b>
8:45am - 8:55am	Opening Remarks and JCU's Net Zero Research <b>Prof Jenny Seddon, Deputy Vice Chancellor Research - JCU</b>
8:55am - 9:05am	ANSHM Vision, Journey and Future Directions <b>Prof Tommy Chan, QUT, President - ANSHM</b>
9:05am - 9:20am	Innovations from North Queensland and the Future of Technology <b>Prof Ian Atkinson, eResearch Professor JCU and a Futurist</b>
9:20am - 9:40am	The Confluence of Transport, Energy and Technology – Shaping Our Transport Future <b>Mr Michael Caltabiano, CEO - NTRO (ARRB)</b>
9:40am - 9:55am	Digitisation and the Energy Transition <b>Mr Jason Hall, A/Chief Engineer - Energy Queensland</b>
9:55am - 10:10am	Smart City Technologies for Climate Resilience <b>Mr Ross O'Toole, Head of Real Estate Technology - Optus Enterprise and Business</b>
10:10am - 10:30am	<b>Morning Tea</b>
10:30am - 10:45am	Net Zero from the Perspectives of Academia and the Professional Associations <b>Prof Brian Uy, Scientia Professor of Structural Engineering - UNSW</b>
10:45am - 11:00am	Sustainability of the Transport Assets and the Role of Technology <b>Dr Torill Pape, Director Structures, E&amp;T - Dept of Transport and Main Roads</b>
11:00am - 11:15am	Building to the Code does not get us Resilient Structures <b>Dr David Henderson, Chief Engineer - Cyclone Testing Station, JCU</b>
11:15am - 11:30am	Challenges in Managing Port Assets and PIANC's Initiatives in Leveraging Technology <b>Dr Sam Mazaheri, Chair Northern Chapter PIANC ANZ and SI Specialist DBCT</b>
11:30am - 12:00pm	Panel Discussion: Asset Management Challenges, Gaps and Opportunities
12:00pm - 12:45pm	<b>Lunch Break</b>
12:45pm - 1:00pm	Structural Health Monitoring of Large Scale Bridges - An International Perspective <b>Prof Yi-Qing Ni - Prof In Smart Structures, The Hong Kong Polytechnic University</b>
1:00pm - 1:15pm	Structural Health Monitoring in Australia - Challenges, Opportunities and Future Directions <b>Mr John Vazey - Engineering Manager, EngAnalysis</b>
1:15pm - 1:30pm	Structural Health Monitoring in the United States and Europe <b>Dr Arash Behnia - Principal, Robert Bird Group</b>
1:30pm - 1:45pm	University, Industry and Government Collaborations <b>Prof Tuan Ngo - The University of Melbourne</b>
1:45pm - 2:15pm	Joint Industry-Academia Session with the theme "Collaboration Catalyst: Bridging the Gap"
2:15pm - 2:45pm	Panel Discussion: Accelerating University Industry Collaborations - Success Stories and Opportunities for Improvement
2:45pm - 2:50pm	Vote of Thanks <b>A/Prof Rabin Tuladhar, James Cook University</b>
2:50pm - 3:30pm	<b>Networking and Drinks</b>
3:30pm - 5:30pm	<b>Advisory Board Meeting (TO010-407, Board Room, JCU Townsville City Campus )</b>
6:30pm - 9:00pm	<b>ANSHM Dinner (Balcony, 287 Flinders St, Townsville City)</b>



# The Smart Infrastructure Summit 2023 & The 15th Australian Network of Structural Health Monitoring Workshop

## Day 2, 24th November

### Keynote Session

**Time** 9:00 AM

**Venue** 025-001, James Cook University, Bebegu Yumba Campus, Douglas

Time	Speakers	Topics
9 - 9:15	Dr Robert J Heywood, Department of Transport and Main Roads	Bridge and Traffic Monitoring Insights
9:15 - 9:30	A/Prof. Colin Caprani, Monash University	Practical Monitoring for Superload Transports
9:30 - 9:45	Dr David Lo Jacono, Jacobs	Dynamic assessment of large infrastructure
9:45 - 10:00	Dr Desiree Nortje, Transurban	Monitoring of Critical Transport Assets
10:00 - 10:30	Panel Discussion: Dr Rob Heywood, A/Prof Colin Caprani, David Lo Jacono, Desiree Nortje	

### Morning Tea (10:30 - 11:00)

### Morning Parallel sessions (11:00 am -12:15 pm)

#### Session 1a Venue: 25-001, James Cook University, Bebegu Yumba Campus, Douglas

Time	Speakers	Topics
11:00 - 11:10	Kunaratnam Jeyamohan, Tommy H.T. Chan, Khac-Duy Nguyen and David P. Thambiratnam	A synergic method for updating prestress force and identifying moving force in prestressed concrete bridges
11:10 - 11:20	Jun Li, Zhen Peng and Hong Hao	Mobile Crowdsensing and IoT sensing techniques for drive-by bridge condition monitoring
11:20 - 11:30	James Gong, Ji-Sung Lee, Wei Zeng and Martin Lambert	A dual-sensor technique for the calibration of frequency-dependent wave speed and attenuation in water pipes
11:30 - 11:40	Huiyue Qiao, Hong Guan, Andrei Bailey, Shoja Jamali and Yong Zhu	Development of IoT-based SHM system prototype for footbridge vibration monitoring using LoRa technique
11:40 - 11:50	Jonathan Lee	A Low-Cost Vibration Sensor for Structural Health Monitoring of Bridges
11:50 - 12:00	Simon Igloi	Low-Cost Water Level Gauging for Flood Impact Analysis
12:00 - 12:15	Question Time	

#### Session 1b Venue: 25-002, James Cook University, Bebegu Yumba Campus, Douglas

Time	Speakers	Topics
11:00 - 11:10	Sagar More, Rabin Tuladhar and Daniel Grainger	Significance of Economic Framework in Maintenance Decision-Making
11:10 - 11:20	Sam Mazaheri	Asset Management of Berth Shiploader Rail Girders via Online Monitoring System
11:20 - 11:30	Owen and Daan Arscott	UAS-Based Multi Layered Data Collection Methods and Defect Detection Algorithms for Predictive Analytics and Bridge Asset Management
11:30 - 11:40	Xutong Zhang, Saeid Talaei, Xinqun Zhu and Jianchun Li	Structural Condition Assessment based on Knowledge Transfer
11:40 - 11:50	Andrew Reid, Pasra Ghannadi and Andy Nguyen	A Framework for Structural Damage Detection based on SAP2000-OAPI and Nature Inspired Optimisers
11:50 - 12:00	Mohamed Jaditager and Daniel Whipp	Port of Townsville Berth 1 Structural Health Monitoring
12:00 - 12:15	Question Time	



**The Smart Infrastructure Summit 2023 &  
The 15th Australian Network of Structural Health Monitoring Workshop  
Day 2, 24th November**

**Lunch (12:15 - 1:15) Building 25 Foyer, James Cook University, Bebegu Yumba Campus, Douglas**

**ANSHM AGM (25-001, James Cook University, Bebegu Yumba Campus, Douglas)**

**Afternoon Parallel sessions (1:30 pm - 2:30 pm)**

**Session 2a Venue: 25-001, James Cook University, Bebegu Yumba Campus, Douglas**

Time	Speakers	Topics
1:30 - 1:40	Shuvashis Saha, Ali Hadigheh, Simon Fleming, Ivan Rukhlenko and Marjorie Valix	Development of Fiber Bragg Gratings Sensors for Reinforcement Corrosion Detection in Structural Health Monitoring
1:40 - 1:50	Ulrike Dackermann and Sahar Hassani	Next-generation coupled structure-human sensing for pedestrian-bridge interaction analysis using data fusion and machine learning
1:50 - 2:00	Bimal Paneru, Dick Yau and Simon Igloi	Tunnel Displacement Monitoring using Battery-Powered Wireless Radar Sensors
2:00 - 2:10	Khac Duy Nguyen and Tommy H.T. Chan	Crack identification in beams by a novel modal-based correlation method
2:10 - 2:20	Jonathan Lee	A Low-Cost Vibration Sensor for Structural Health Monitoring of Bridges
2:20 - 2:30	Raye Newman	Bridge and Traffic Monitoring (BTM) of the Gateway Arterial Flyover
2:30 - 2:45		Question Time

**Session 2b Venue: 25-002, James Cook University, Bebegu Yumba Campus, Douglas**

Time	Speakers	Topics
1:30 - 1:40	Brad Dalton	Spatial Positioning in the SHM World.
1:40 - 1:50	Madhumenon Krishnamenon and Rabin Tuladhar	Asset Condition Monitoring using operational data from SCADA systems.
1:50 - 2:00	Haoran Zuo, Songye Zhu, Kaiming Bi and Hong Hao	Nonlinear vibration control of offshore wind turbines under multiple dynamic hazards
2:00 - 2:10	Abdulgani Nur Yussuf, Haosen Chen, Nilmini Weerasinghe, Lei Hou and Kevin Zhang	Automated Stormwater infrastructure inspection leveraging deep learning or Convolutional Neural Network
2:10 - 2:20	Harsh Rathod, Clara Owen and Daan Arscott	UAS-Based Multi Layered Data Collection Methods and Defect Detection Algorithms for Predictive Analytics and Bridge Asset Management
2:20 - 2:30	Vahid Mousavi, Maria Rashidi, Masoud Mohammadi and Bijan Samali	Application of Topological Data Analysis for Bridge Health Monitoring
2:30 - 2:45		Question Time

**Closing Ceremony (2:45 pm - 3:15 pm)**

*Venue: 25-002, James Cook University, Bebegu Yumba Campus, Douglas*

**Networking and Drinks (3:15 pm - 4:00 pm)**

*Venue: 25 Foyer, James Cook University, Bebegu Yumba Campus, Douglas*