

STRUCTURAL ASSESSMENT & HEALTH MONITORING

“SAHM”

WESTERN SYDNEY
UNIVERSITY



Structural Assessment and Health Monitoring (SAHM) team at the Centre for Infrastructure Engineering (CIE) at Western Sydney University is a world class team of individuals at the leading edge of civil infrastructure. SAHM offers highly specialised engineering consulting and research capabilities aimed at identifying practical and efficient solutions to clients' needs. This capabilities include:

- Life cycle management of civil infrastructures including bridges, buildings, dams, transmission towers, etc.
- Health monitoring and remediation planning
- Preservation of heritage assets
- Inspection and condition assessment
- Structural analysis
- Maintenance and rehabilitation
- Planning and priority ranking

Relying on the extensive resources and competencies, SAHM is capable of providing services in the following areas:

- Digitisation and Health monitoring of structures using drone and laser scanner
- As built development of structural plans and models
- Static & Dynamic Testing
- Experimental Modal Analysis
- Numerical Modelling
- Damage Identification
- Finite Element Model Updating
- Bridge Life Cycle Analysis and Load Rating
- Assessment of Future Condition of Bridges
- Priority Ranking for Budget Allocation
- Remediation Planning
- Decision Support Systems for Bridge Asset Management
- Real Time Structural Health Monitoring
- The Physical Modelling of Bridge Pier Scouring
- Prevention of Bridge Collapse Due to Scouring and Hydraulic Problems

This expertise is offered to corporate, government and community clients.

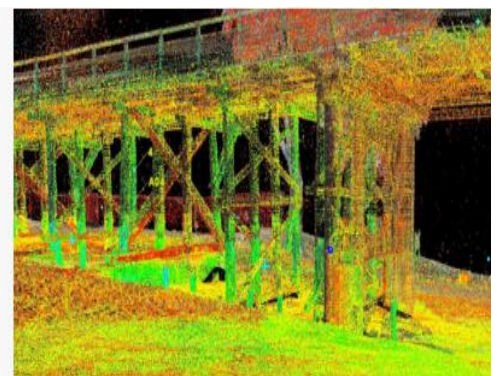


Drone Inspection of Peats Ferry Bridge Using Falcon 8+

WORLD-CLASS FACILITIES

The Structural Research and Testing Laboratory at CIE is one of the best testing and research facilities in Australia. It includes several multi-purpose structural testing and sensor technology laboratories. The facility complies with ISO/IEC 17025:2005 for testing. Some of the major testing and monitoring facilities at SAHM include:

- Intel Falcon 8+ Drone
- Phantom 4 Drone
- Elios (confined space inspection) Drone
- Z+F Laser scanner
- Hongshan 1000 tonne Multipurpose Testing Machine
- Elevated Temperature Test Rig
- Strong Floor 8m by 16m and associated Testing Rigs including multiple actuators
- Advanced Materials Testing equipment
- An Automated Microwave Imaging System
- Advanced Research Laboratory for



Laser Scanning of John Foord Bridge using Z+F imager

THE “SAHM” TEAM OF HIGHLY SPECIALISED EXPERTS

SAHM has professional and dedicated team members with strong theoretical background and practical expertise, including infrastructure engineering and asset management, structural control, health monitoring and rehabilitation planning. Having involved in numerous projects in collaboration with different municipalities and industries, SAHM's team is familiar with major safety concerns, logistics and routine procedures and expectations of clients which facilitates providing services with minimal disruption to their workflow.

PROF. BIJAN SAMALI (CIE Director)

Prof Bijan Samali is a Professor of Structural Engineering and received his Doctor of Science from the George Washington University in 1984 in the area of Structural Dynamics. With over 35 years of academic and consulting experience, Prof Samali was instrumental in securing a \$95,000 grant awarded by the TfNSW (former RMS) of NSW and AUSTRROADS for research on development of assessment technologies for management of bridge assets complemented by a further \$120,000 grant from Institution of Public Works Engineering Australia to continue the work on developing cost effective techniques in maintaining and managing timber bridge assets. This work led to winning two major local government awards. Over the period 2008 - 2010 Prof Samali also secured a \$286,000 grant from the TfNSW (former RMS) to develop a model for the assessment of the future condition of bridges. Prof Samali has been involved in testing and analysis of over 300 timber, concrete, steel and composite bridges in NSW amounting to 600 spans. The work was commissioned by over 30 local governments in NSW. He has also been a senior member of Australian Network for Structural Health Monitoring since its inception in 2009.

Our Team

DR MARIA RASHIDI (Team Leader)

Expertise: Structural Engineering and Asset management (Drone Pilot)

DR MOHSEN ASKARI

Expertise: Mechanical Engineering and Structural Health monitoring

DR YANG YU

Expertise: Artificial Intelligence and Machine Learning

DR NARIMAN SAEED

Expertise: Structural Engineering and Rehabilitation (Drone Pilot)

DR KAMYAR KILDASHTI

Expertise: Structural Engineering and Health monitoring

DR HASSAN MALEKZEHTAB

Expertise: Structural Engineering and Health monitoring

Mr ALI GHARIZADEH

Expertise: Mechanical Engineering and Structural Health monitoring (Drone Pilot)



Left to right: Dr Malekzehtab, Dr Yu, Dr Askari, Dr Kildashti, Prof Samali, Dr Rashidi, Mr Gharizadeh, Dr Saeed,

CONTACT DETAILS:

Centre for Infrastructure Engineering
Western Sydney University
Locked Bag 1797
Penrith NSW 2751 Australia
Web: westernsydney.edu.au/cie

Consulting Enquiries:

Dr. Maria Rashidi

Phone: +61 2 4736 0183

Email: m.rashidi@westernsydney.edu.au



Recent Projects:

- Feasibility study of using Remotely Piloted Aircraft (RPA) for Bridge Inspection (Funder: TfNSW)
- Utilisation of Remotely Piloted Aircraft (RPA) Systems and Artificial Intelligence (AI) for Bridge Health Monitoring (Funder: TfNSW)
- Health monitoring of AMP building during its partial demolition (Funder: BG&E Pty Ltd)
- Structural health monitoring of bridges subjected to flood (Funder: TfNSW)
- Design and investigation works for the upgrade and replacement of Cedar Point Bridge (Funder: Kyogle Council)
- Digitisation and conservation of Prince Alfred Bridge through utilisation of RPAs (Funder: Gundagai Historic Bridges)
- Digitisation of John Foord Bridge through Utilisation of RPA and laser scanning (Funder: TfNSW)
- Photogrammetry and digitisation of Windsor Bridge (Funder: TfNSW)
- Onsite aerial photogrammetry and indicative CADD model development of McKanes bridge (Funder: TfNSW)
- Traffic Survey of a few intersections in Sydney (Funder: TfNSW)
- Condition assessment of Mt Emu Creek Bridge (MW Engineers)
- Developing a low-cost accurate Bridge Weigh in Motion System for estimation of gross and axle Vehicle Weights (Funder: DATA61)
- Development of a Novel Mobile Sensory System for Bridge Health Monitoring (Funder: Australian Research Council)
- Structural assessment of eight major bridges in Sydney (Funder: The Council of the City of Sydney)
- Structural assessment of two composite bridges (Funder: Palerang Council)
- Condition assessment and Health Monitoring of in-service Civil Infrastructure using Deep Learning (Early Career Research Grant)
- Quantitative based protection coating assessment using digital imaging and artificial intelligence (Funder: Mincka Pty Ltd)
- Corrosion detection and asset maintenance of electricity lattice towers (Endeavour Energy)

SELECTED INDUSTRY AND GOVERNMENT CLIENTS

