

STRUCTURAL ASSESSMENT AND HEALTH MONITORING “SAHM”



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.



PROF. BIJAN SAMALI (Team Leader)

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 32 years of academic and consulting experience, Prof. Samali was instrumental in securing a \$95,000 grant awarded by the RTA (now RMS) of NSW and AUSTROADS 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 RTA (now RMS) of NSW 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 2008.

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Structural Assessment and Health Monitoring (SAHM) unit at the Centre for Infrastructure Engineering (CIE) at Western Sydney University is a world class facility at the leading edge of civil infrastructure. SAHM has expanded engineering research into the highly specialised areas of:

- Life cycle management of civil infrastructures including bridges, dams, transmission towers, etc.
- Health monitoring and remediation planning.

SAHM offers highly specialised engineering consulting and research capabilities aimed at identifying practical and efficient solutions to clients' needs in the field of structural asset management. This includes:

- Inspection
- Condition assessment
- Structural analysis
- Health monitoring
- Maintenance and rehabilitation
- Planning and priority ranking.

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

STRUCTURAL ASSESSMENT AND HEALTH MONITORING (SAHM)

Our Team

DR. MARIA RASHIDI

Dr. Maria Rashidi is an expert in structural engineering and asset management. Her recent research has been focused on life cycle management of bridges. She has developed a Decision Support System for Remediation of Bridges (named as BR-DSS), which enables bridge asset managers in priority ranking and remediation planning of bridge networks. She has also carried out research on application of Fiber Reinforced Polymer (FRP) for rehabilitation of structures. Her continuing research effort is on feasibility study of using Remotely Piloted Aircraft (RPA) for inspection of civil infrastructure assets. Dr. Rashidi is also a certified drone pilot.

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DR. MOHSEN ASKARI

Dr. Mohsen Askari, completed his PhD in Structural Engineering in 2014. He is an expert in control, optimisation, and health assessment of civil infrastructures, such as buildings, bridges, dams, transmission poles and towers. He has developed several techniques to reduce the vibration of structures, as well as a warning system for early damage detection in buildings and bridges. His achievements are published in international journals and presented in several conferences.

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DR. YANG YU

Dr Yang Yu has extensive experience in adaptive control, damage identification and health monitoring of civil infrastructure. He obtained his PhD in structural health monitoring in 2012 from Beihang University in China. Currently, he is involved in the Werrington Bridge Project and focussing on the data processing and algorithm design for the purpose of bridge weigh-in-motion and damage detection.

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DR. NARIMAN SAEED

Dr Nariman Saeed completed his PhD in the area of structural retrofit with FRPs in 2015. Dr Saeed started his professional career as a Structural/Geotechnical engineer in 2000 and has been involved in several national projects in different engineering positions for 18 years. He is expert in structural rehabilitation and finite element modelling. He has also obtained his Remote Pilot Licence (RePL) in 2018.

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

DR. KAMYAR KILDASHTI

Dr Kamyar Kildashti has 10 years of research experience focusing on performance-based earthquake engineering, seismic evaluation and rehabilitation of structures, dynamic soil-structure interaction, seismic evaluation of concrete bridges, and collapse analysis of steel structures. He is currently working on two ARC projects (i) dynamic simulation of non-spherical particles by using discrete element method (ii) experimental and numerical studies into hybrid wall panels by the proprietary name of Architectural Formwork System (AFS). Dr. Kildashti is also working on health monitoring of an instrumented bridge, dynamic performance of liquid storage tanks and collapse analysis of hybrid hot-rolled cold-formed buildings.

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Mr. ALI GHARIZADEH

Mr Ali Gharizadeh is a technical officer supporting research activities in the Centre for Infrastructure Engineering since 2015. He obtained his Bachelor Degree in Mechanical Engineering in 2008 from Sharif University of Technology, Iran and his Postgraduate Degree in 2014 from University of Technology, Sydney. Mr Gharizadeh is expert in mechanical and Structural engineering design and manufacturing, fracture mechanics, maintenance of equipment and machinery, instrumentation and data acquisition and analyses procedure and bridge assessment and health monitoring. Mr. Gharizadeh is a certified drone pilot.

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WORLD CLASS TESTING FACILITIES

CONTACT DETAILS

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Structural Assessment and
Health Monitoring of Werrington
Bridge



Assessment of Peats Ferry Bridge
using Intel Falcon 8+ Drone



Structural dynamic lab

SERVICES AND CAPABILITIES

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

- Drone inspection for monitoring of structures
- Static & Dynamic Testing
- Experimental Modal Analysis
- Numerical Modelling
- Damage Identification
- Finite Element Model Updating
- Condition Rating
- Bridge Life Cycle Analysis
- Assessment of Future Condition of Bridges
- Priority Ranking for Budget Allocation
- Remediation Planning
- Decision Support Systems for Bridge Asset Management
- Structural Health Monitoring

ADVANCED 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
- Hongshan 1000 tonne Multipurpose Testing Machine
- Elevated Temperature Test Rig
- Strong Floor 8m*16m and associated Testing Rigs including multiple actuators
- Advanced Materials Testing equipment
- An Automated Microwave Imaging System