

Innovations in Human Factors and Ergonomics

The Centre for Human Factors and Sociotechnical Systems 2022 Research Symposium



Symposium Program, Thursday 15th September, 2022

9:00-9:30am	Registration & coffee	
9:30-10:00am	Opening address and Welcome to Country	<i>Prof Ross Young, University of the Sunshine Coast Mr Lyndon Davies, Gubbi Gubbi Dance Troupe</i>
10:00-10:45am	Designing for good health: principles and practices in hospital Emergency Departments	<i>A/Prof Robyn Clay-Williams, Macquarie University</i>
10:45-11:15	When time is money: applying Human Factors and Ergonomics (HFE) to improve safety in the gig economy	<i>A/Prof Gemma Read, University of the Sunshine Coast</i>
11:15-11:45am	Morning tea	
11:45-12:15pm	Applying a HFE based approach to inform the (re)design of community infrastructures to improve inclusion, health and wellbeing outcomes	<i>Dr Nicholas Stevens, University of the Sunshine Coast</i>
12:15-12:45pm	Toward safer cycling: an analysis of incidents reported to the Cyclist Reporting of Incidents Tool (CRIT)	<i>Jolene Cox, University of the Sunshine Coast</i>
12:45-1:45pm	Lunch and Student poster presentation	
1:45-2:15pm	“Healthcare systems”: tautology or oxymoron?	<i>Prof Rod McClure, Health and University Executive, QLD Health</i>
2:15-2:45pm	Understanding the risks associated with artificial general intelligence: a many model thinking approach	<i>Dr Scott McLean, University of the Sunshine Coast</i>
2:45-3:15pm	Afternoon tea	
3:15-3:45pm	Systems thinking for optimising microclimate modelling: enhancing resilience to disaster	<i>Dr Silvia Tavares, University of the Sunshine Coast</i>
3:45-4:15pm	“You’re on mute”: insights from using (mostly free) online platforms to enhance HFE capabilities amongst practitioners during COVID-19.	<i>Dr Clare Dallat, Risk Resolve</i>
4:15-5:00pm	The grandest challenge of them all: the need for society to think in systems	<i>Prof Paul Salmon, University of the Sunshine Coast</i>
5:00-5:15pm	Wrap up	<i>Dr Satyan Chari, Program Director, Bridge Labs, QLD Health</i>
5:15-6:00pm	Networking drinks	
6:00-8:00pm	Conference Dinner	

Workshop program, Friday 16th SEPTEMBER, 2022

Attendees: Choose one morning workshop and one afternoon workshop

8:30-9:00am	Registration & coffee	
9:00am-12:00pm	Introduction to Human Factors and Ergonomics	<i>A/Prof Gemma Read, University of the Sunshine Coast</i>
9:00am-12:00pm	Contemporary issues in Human Factors and Ergonomics	<i>Prof Paul Salmon, University of Sunshine Coast</i>
12:00-1:00pm	Lunch	
1:00-4:00pm	Net-HARMS	<i>Prof Paul Salmon, University of Sunshine Coast</i>
1:00-4:00pm	Work Domain Analysis	<i>Dr Nicholas Stevens, University of Sunshine Coast</i>
1:00-4:00pm	AcciMap	<i>A/Prof Gemma Read, University of Sunshine Coast</i>
1:00-4:00pm	Casual Loop Diagrams	<i>Dr Scott McLean, University of the Sunshine Coast</i>

Introduction to Human Factors and Ergonomics

This workshop will provide an overview of the key theories and methods applied within HFE. Come on a journey from understanding individuals, teams, organisations and whole systems from an HFE perspective. Topics covered in the workshop include: situation awareness, decision making, workload, usability and accident causation. The workshop is perfect for those new to the HFE field or those with expertise in some facets of HFE who would like to broaden their knowledge of the discipline.

Contemporary issues in Human Factors and Ergonomics

This workshop will discuss a series of contemporary and future issues in HFE. Participants will gain insight into emerging issues such as Artificial Intelligence (AI), automation, cybersecurity, global risks, brain computer interfaces, and the changing nature of human work, and will receive guidance on core HFE concepts and methods that can be applied in these areas. This workshop will be suitable for HFE researchers and practitioners who are either working on contemporary issues or wish to expand their knowledge and skill-sets to support future research and practice.

The Networked Hazard Analysis and Risk Management System (NET- HARMS)

The Networked Hazard Analysis and Risk Management System (NET- HARMS) is a new systems thinking-based risk assessment method that provides analysts with a simple and easy to use tool for identifying risks across complex sociotechnical work systems. In this workshop participants will receive expert guidance on how to apply Net-HARMS and use its outputs to develop effective risk controls. The workshop includes step-by-step guidance, case studies outlining previous Net-HARMS applications, and participants will gain practical experience in applying Net-HARMS in different safety contexts.

Work Domain Analysis

Work Domain Analyses (WDA) is the first phase of the popular Cognitive Work Analysis systems analysis and design framework. As a standalone method WDA is a powerful approach for modelling all kinds of complex sociotechnical systems. The method involves constructing an Abstraction Hierarchy and the output provides a model of what activities can be performed within a system, but also how and why they are performed and with what. This workshop will take participants through an eight-step methodology for developing a WDA model; they will be provided with software, to keep, for the development of WDA models and will leave with the skills to explore the boundaries and interdependencies of any complex system.

AcciMap

AcciMap is an accident analysis technique which supports a better understanding of accident causation in both the analysis of single incidents and multi-incident data sets. This workshop will provide expert guidance and tips on how to use AcciMap and demonstrate how the data from multiple AcciMaps can be aggregated to identify patterns across incidents. The workshop will use a series of case studies from our previous AcciMap analyses, and participants will gain practical experience in applying AcciMap in different safety contexts.

Causal Loop Diagrams

Causal loop diagrams (CLDs) are the building blocks of system thinking and are a powerful method for understanding complex issues. All systems comprise interacting networks of reinforcing (positive) and balancing (negative) feedback loops that influence system behaviour. CLDs provide a method to represent these dynamic interrelations via visual representation and have been used to better understand and respond to complex issues such as Covid-19, obesity, climate change, food security, terrorism, and transport-related trauma, to name a few. This workshop will include practical step-by-step guidance on developing CLDs, demonstrate a series of case study applications of CLDs, and provide participants with practical experience of developing CLDs in different contexts.