

DEFENCE HUMAN SCIENCES SYMPOSIUM

2 – 4 December 2025



Defence Human Sciences Symposium 2025 Program Tuesday, 2 December	
	Opening Session
08.30 – 08.35	Call to Order and Housekeeping
08.35 – 08.45	Acknowledgement of Country
08.45 – 09.00	Address from The University of Western Australia
09.00 – 09.15	Address from Defence
09.15 – 09.30	Presentation
09.30 – 10.00	Morning Tea Break
10:00 – 12:00	Virtual Military Panel <i>How can Defence leverage Human Science research for the betterment of ADF personnel?</i>
12:00 – 12:30	Poster Session 1A – Pitches Chair: Shayne Loft
12.30 – 13.15	Lunch Break
13:15 – 13:45	Poster Session 1B - Viewings
13:45 – 15:00	Session 1: Nutrition & Physiology Chair: Matthew Cooke
13.45 – 14.00	Optimising the Warfighter Cognobiome: novel microbiome interventions to improve the cognitive performance of Warfighters Emily Hoedt
14.00 – 14.15	The DSTG Warfighter Performance Enhancement (WPE): Nutrition and Dietary Supplements Rosa Peterson
14.15 – 14.30	The impact of heat stress on the gut microbiome, performance and well-being of young adults: Study protocol and preliminary results Matthew Cooke
14.30 – 14.45	Molecular expression patterns associated with human response to stress. Tony Parker
14.45 – 15.00	Microgravity: identifying how Red Blood Cells are disrupted by changing forces Kate Poole
15.00 - 15.30	Afternoon Tea Break

15:30 – 17:00	Session 2: Information & Decision Sciences Chair: Chris Stanton
15:30 – 15:45	Information Advantage and CognAttack: Development of a Novel Tool for Assessing Psychological Vulnerability to Cognitive and Psychological Manipulation Sabina Kleitman
15:45 – 16:00	A psychological approach to understanding and predicting insider threat Victor Chukwudike Okoro
16:00 – 16:15	From Answer to Advantage: Human Sciences, “42”, and Strategic Decision-Making Chris Greenbank
16:15 – 16:30	QUANDARY: Systematic generation of ethical challenge(s) to support ethical decision-making for future military operating environments Jenna Allen
16:30 – 16:45	Understanding dysfunctional behaviour in the military: A new systems thinking-based incident analysis method Jolene Cox
16:45 – 17:00	Australia–Sri Lanka Cooperation in Border Risk Management: Strengthening Interagency Synergy Against Maritime Crimes Chaminda Roshan Kulatunga
17.00	End of Day

Wednesday 3 December	
08:30 – 09:30	Session 3: Fatigue & Recovery Chair: Siobhan Banks
08:30 – 08:45	The DSTG Warfighter Performance Enhancement Project: Physical Recovery and Restoration Alison Fogarty
08:45 – 09:00	Optimising LED Lighting for Health and Performance Crystal Yates
09:00 – 09:15	Sleep Regularity Assessment for Identifying Optimal Watchbills Jacob Guzzetti
09:15 – 09:30	The impact of shift work and sleepiness on risk taking behaviour: A novel paramedic simulation based study Laura Hirello
09:30 – 10:00	Morning Tea Break
10:00 – 11:30	Session 4: Human-Machine Teams Chair: Shayne Loft
10:00 – 10:15	Adaptive Explainability for Trust Alignment via Physiological Feedback in Human-AI Collaboration Mohammad Naim Rastgoo
10:15 – 10:30	Team performance with AI: Systematic comms manipulation suggests AI transparency is no panacea Owen Carter
10:30 – 10:45	Should we query humans supervising highly automated systems about their understanding of the task environment? Vanessa Bowden
10:45 – 11:00	Investigating the Scaling of Command Complexity in m:N Operations for Future Remotely Piloted Aircraft Systems Tsz-lok Tang
11:00 – 11:15	Modelling, monitoring and moderating human-AI interaction Anna Ma-Wyatt
11:15 – 11:30	Should there be an 'AI' in team? Modelling the impact of AI agents on teamwork in submarine control room teams Paul Salmon
11:30 – 12:00	Poster Session 2A – Pitches Chair: Shayne Loft
12:00 – 12:45	Lunch Break
12:45 – 13:15	Poster Session 2B - Viewings
13:15 – 13:45	Invited Speaker Presentation Major Angela Uphill <i>The Physiological and Performance Consequences of the Special Forces Selection Course</i>
13:45 – 15:15	Session 5: Training Innovation Chair: Alison Fogarty
13:45 – 14:00	Effectiveness of the MantisX combat shooting training system Kane Middleton

14:00 – 14:15	Effects of Martial Arts-Based Training on Force, Stability, Respiratory Pressures, and Muscle Activation in Combat-Relevant Tasks Sherrilyn Walters
14:15 – 14:30	Validation of the Army Individual Monitoring survey (AIMs) to support human performance management Luana Main
14:30 – 14:45	The DSTG Warfighter Performance Enhancement Project: Physical Training and Conditioning Greg Carstairs
14:45 – 15:00	Adaptive Cognitive Fitness dual-task training to guide tailored training and real-world readiness assessment Ken Franks
15:00 – 15:15	Testing far-transfer benefits of attentional control training to augment individual performance in a high-pressure task environment Hector Palada
15:15 – 15:45	Afternoon Tea Break
15:45 – 17:15	Session 6: Warfighter Cognition Chair: Jason Bell
15:45 – 16:00	The DSTG Warfighter Performance Enhancement Project: Cognitive Performance Natalie Corluka
16:00 – 16:15	CogFlo: A Reliable Cognitive Fitness Assessment for Military Leadership Murat Yucel
16:15 – 16:30	Testing the mediation-moderation model of Attentional Control Theory in a submarine simulation environment Nathan Henry
16:30 – 16:45	Reward Predictability Shapes Attentional Adaptation Saraa Al-Saddik
16:45 – 17:00	Attentional control under concurrent physiological stress: Model-based identification of discrete processing effects at different level of aerobic exertion Mitch Smith
17:00 – 17:15	The Cognitive Cost of Switching During Partial Automation Melissa Ngo
17:15	End of Day
17:30	<u>Networking Function</u> Wonil Hotel Perth – West Kitchen and Bar 21 Hackett Drive, Perth 6009 Sponsored by Defence Science Centre Western Australia. 

Thursday 4 December	
09:00 – 10:15	Session 7: Force Health Protection Chair: Emma Williams
09:00 – 09:15	Sounding the Alarm: Are Current Noise Standards Fit-For-Purpose in the ADF? Jemma Coleman
09:15 – 09:30	Spinal Complaints in Australian Navy Aircrew: Prevalence, Risk, and New Insights into In-Flight Mechanical Loading Nadine Cooper
09:39 – 09:45	Off-balance in two hours: The immediate impact of mild inflammation on postural control Prasanna Sritharan
09:45 – 10:00	Monitoring Low-Level Blast Exposure to Personnel in Australian Defence Force Training Kurt Mudie
10:00 – 10:15	Agreement between loadsol® force insoles and force platforms during treadmill load carriage Danielle Vickery-Howe
10:15 – 10:45	Morning Tea Break
	Session 8: Assistive Technology & Wearables Chair: Luana Main
10:45 – 11:00	The DSTG Warfighter Performance Enhancement Project: Assistive Technologies Jemma Coleman
11:00 – 11:15	Consumer-off-the-shelf wearables for early detection of biological threat in operational environments Linda Grosser
11:15 – 11:30	Quantifying Pilot Stress in Helicopter Simulation via Electrodermal Activity Projections on a 1D Manifold Tom Gedeon
11:30 – 11:45	HEXAS Galvanic Vestibular Stimulator for Spatial Disorientation Training Paul Breen
11:45 – 12:00	Measuring Operator State in Real-time: Bringing Evidence Accumulation Models 'Into the Wild' Zach Howard
12:00 – 12:45	Lunch Break
	Session 9: Human Factors & Design Chair: Karina Jorritsma
12:45 – 13:00	Identifying and Quantifying Big Five of Teamwork Behaviors in a Simulated Submarine Control Room Darcie Hall
13:00 – 13:15	Leadership, Communication and Collaboration: Enablers of Successful Open Military Systems Jess Szulc

13:15 – 13:30	A Catalogue-based Method for Evaluating Human Usability of Defence Sociotechnical Systems Belinda Cham
13:30 – 13:45	Optimising visual salience in see-through displays used in low light conditions Kate Coffey
13:45 – 14:00	Revised Maritime Physical Accommodation Guidance for the Royal Australian Navy Kate Ponton
14:00 – 14:15	Case Study: Design of Surface Ship Control Room Consoles Peter Schumacher
14:15 – 14:30	Brief tea break / intermission
14:30 – 15:00	Closing Ceremony Presentation of Awards Closing remarks and thanks
15:00	Conference Ends

Poster Display and Pitch Session

Poster Session 1A - Pitches

Tuesday 2 December 12.00 – 12:30

1	Adaptive Human-AI Collaboration via Hierarchical Deep Reinforcement Learning Informed by Human Cognitive Load Mohammad Naim Rastgoo
2	Adaptive Trust-Sensitive Hierarchical Reinforcement Learning for Reciprocal Human–AI Teaming in Dynamic Environments Mohammad Naim Rastgoo
3	AI as a Force Multiplier in Information Warfare Timothy Millar
4	Drone swarm coordination in the congested electro-magnetic environment Kurt Langfeld
5	Dynamic Preference Learning for Complex Cobotic Scenarios Elena Vella
6	Trust in Autonomous Vehicles via Psychophysiological Sensors Nicole Toomey
7	Developing a Socio-Technical Model for One-to-Many Teaming in Remote Environments Donna Duffy
8	Impact of Multi-Sensory Information and Simulator Immersion on Decision-Making Performance, Presence, and Cognitive Load Zachariah Hoyne
9	AFOSR basic research portfolios in human sciences David Newell
10	Chirality-Informed Diagnostics and Therapeutics for Enhancing Defence Human Capability Ashraf Ghanem
11	Leading small teams in the Australian Army: The role of transformational leadership in ensuring organisational commitment. Robert Goldsmith
12	Organisational Culture and Open Military Systems: Evaluating the Available Evidence Kristiina Ahola

Poster Session 2A - Pitches

Wednesday 3 December 11.30 – 12:00

13	Enhancing Collaborative Strategic Analysis for Agile Command and Control through Mixed Reality Andrew Cunningham
14	Effects of a 12-Week Martial Arts-based Intervention on Spinal Compression During Standing Heavy Load Carriage Sherrilyn Walters
15	Enhancing Human Performance & Medical Readiness through International Collaboration: Challenges & Solutions Melinda Eaton
16	Using proprioception testing to identify individuals at greater risk of subsequent injury in a cohort study of collision sport athletes? Gordon Waddington
17	Harnessing agro-waste for Smart biodegradable food packaging Mandeep Gulati
18	Optimising the Warfighter Cognobiome: Pre-clinical models to evaluate novel microbiome interventions to modulate the gut-microbiome-brain axis Kateleen Hedley
19	The Impact of Simulated Environmental Stress on Food Aroma Perception in Virtual Reality Grace Loke

20	Special Operations Officers Threat-No-Threat Decision-Making in Higher and Lower Fidelity Virtual Reality Simulation Minerva Westbrook
21	Challenges to Effecting Change into the ADF C2 Capability Life Cycle Michael Francis
22	Patient Clearance Pod (PC-Pod): Multi-Domain UAV, UGV, and USV-Enabled Modular Casualty Evacuation Capability for the Allied Forces Abhilash Chandra
23	Decoding distraction: An EEG study of value-modulated attentional capture Caleb Stone
24	Effects of a Multimodal Training Intervention on Cognitive Fitness and Wellbeing in High-Pressure Work Environments Paul Taylor
25	Training under fire: Monitoring cognitive load and stress in VR/AR combat simulations John Cass