## Defence Human Sciences Symposium 2024 Program
**Monday, 2 December**

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| | **Opening Session** |
| 09.00 – 09.10 | **Call to Order and Housekeeping** |
| 09.10 – 09.15 | **Acknowledgement of Country** |
| 09.15 – 09.30 | **Opening Remarks**<br>Deakin University |
| 09.30 – 09.40 | **Address from the Chief Defence Scientist, Professor Tanya Monro** |
| 09.40 – 10.15 | **Keynote 1** |
| **10.15 – 10.45** | **Morning Tea Break** |
| | **Session 1: Cognition** |
| 10:45 - 11:00 | **Acute hypoxia increases path integration distance and angle error, and reduces aperiodic EEG activity**<br>Michael Young |
| 11:00 – 11:15 | **Managing Cognitive Overload: Real Time Assessment using Machine Learning Models Trained on Physio-Behavioural Signals**<br>Simon Hosking |
| 11:15 - 11:30 | **Cognitive Fitness: reliable measurement with implications for high-pressure job performance and resilience**<br>Murat Yucel |
| 11:30 - 11:45 | **Dynamic Cognitive Fitness testing for NZDF Cognitive Conditioning program: a Cognitive Gym application**<br>Ken Franks |
| 11:45 - 12:00 | **Measurement reliability and validity in complex attention-control task**<br>Andrew Heathcote |
| 12:00 - 12:15 | **Training human attentional control to enhance individual and team performance**<br>Shayne Loft |
| **12.15 – 12.45** | **Poster Session 1A - Pitches** |
| **12.45 – 13.30** | **Lunch Break** |
| **13:30 – 14:00** | **Invited Speaker 1** |
| | **Session 2: Biomarkers and Performance** |
| 14.00 – 14.15 | **Molecular profiles as predictors of performance outcomes under various stressors**<br>Tony Parker |

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| 14.15 – 14.30 | **Predicting Cognitive Workload and Task Performance Errors during the Multi-Attribute Task Battery using Eye Gaze**<br>Gaurav Patil |
| 14.30 – 14.45 | **Psychoneuroimmunological changes following an acute inflammatory response:  a novel study in CAREN**<br>Prasanna Sritharan |
| 14.45 - 15:00 | **Wireless and on-board sensor system for quantifying human performance in real-time**<br>Ajay Pandey |
| **15.00- 15.15** | **Afternoon Tea Break** |
| **15:15 – 15:45** | **Poster Sessions 1B - Viewings** |
| | Session 3: Sleep, Vision and Fatigue Management |
| 15.45 – 16.00 | **The complexities of twilight flight: investigating the limits of human visual perception in dim light**<br>Kate Coffey |
| 16.00 – 16.15 | **A Systematic Review of Lighting Interventions in Military Settings: Circadian Rhythms and Sleep Impacts on Performance**<br>Alisha Guyett |
| 16.15 – 16.30 | **Design and evaluation of SleepSync – a personalised sleep and circadian health management app for shift workers in the Australian Defence.**<br>Prerna Varma |
| 16.30 – 16.45 | **Distributed Team Performance and Cohesion during Night Operations**<br>Ellyse Greer |
| 16.45 – 17.00 | **Fatigue in teams; Exploring the impact on co-located, distributed, collaborative and cooperative teams**<br>Crystal Yates |
| 17.00 – 17.15 | **Mixed Reality for Countering Fatigue in Distributed Teams**<br>James Baumeister |
| **17.15** | **End of Day** |

| Tuesday 3 December | |
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| 09:00 – 9:30 | **Invited Speaker 2** |
| | **Session 4: Command and Control** |
| 09:30 – 09:45 | **Challenges in Modelling Human Elements in Command & Control Systems**<br>Rachel Mate |
| 09:45 – 10:00 | **Development and Preliminary Testing of a Cognitive Load Mitigation Platform for Staff Officers Working in Command-and-Control Environments**<br>Frederick Walker |
| 10:00 – 10:15 | **Lessons on Distributed Command & Control from the Russo-Ukrainian Conflict for the Australian Defence Force**<br>Michael Francis |
| 10:15 – 10:30 | **Yielding tactical advantage through usability testing best-practice: Lessons learned from a usability study of the Joint Autonomy Missions System**<br>Amelia Moyes |
| 10.30 – 11.00 | **Poster Session 2A - Pitches** |
| **11:00 – 11:30** | **Morning Tea Break** |
| | **Session 5: Human Factors** |
| 11:30 – 11:45 | **A Human Centred Design Concept for the JOC Control Room**<br>Peter Schumacher |
| 11:45 – 12:00 | **Maximising opportunity and minimising risk – identifying human system integration considerations to drive defence procurement enabling research**<br>Craig Fletcher |
| 12:00 – 12:15 | **Evaluating 3-dimensional extended reality visualisations for Anti-Submarine Warfare**<br>Tom Fahy |
| 12:15 – 12:30 | **Exploring Open Systems: A Sociotechnical Problem**<br>Cayleigh Stock |
| 12:30 – 12:45 | **Human Factor for Autonomous Underwater Vehicle Launch and Recovery**<br>Peter Schumacher |
| **12:45 – 13:30** | **Lunch Break** |
| 13:15 – 13:45 | **Poster Session 2B - Viewings** |
| | **Session 6: Information Warfare** |
| 13:45 – 14:00 | **Divided We Fall: Exploring the Impact of Segmentation Disinformation on Defence Personnel**<br>Emma Buurmans |
| 14:00 – 14:15 | **Integrated Planning for Uncertainty-Centric Pilot Assistance Systems**<br>Sabrina Caldwell |
| 14:15 – 14:30 | **Making Facts Fun! Style-based interventions into online misinformation ecosystems**<br>Emily Booth |

| 14:30 – 14:45 | **Visual Abstraction for Virtual Reality Training of Threat Assessment** <br> Sean Müller |
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| 14:45 – 15:00 | **Metacognitive training improves the quality of decision-making by increasing real-time sensitivity to decision uncertainty** <br> Dragan Rangelov |
| 15:00 – 15:15 | **Special Operations Officers Use of Sensory Information for Decision-Making in Systematic Venue Clearance** <br> Minerva Westbrook |
| **15:15 – 15:45** | **Afternoon Tea Break** |
| | **Session 7: Human Machine Teaming** |
| 15:45 – 16:00 | **Enhancing Collaborative Multi-Agent Reinforcement Learning with Asymmetric Advantage of Human Behavior** <br> Bahareh Nakisa |
| 16:00 – 16:15 | **Rethinking AI in Drone Warfare: A Posthuman Critical Theory Approach** <br> Anna Bohdanets |
| 16:15 – 16:30 | **Teamwork potential of large language models** <br> Patrick Cooper |
| 16:30 – 16:45 | **Determining Crewing Requirements for RAS Technologies** <br> Katrina Hosszu |
| 16:45 – 17:00 | **Drone racing driving asymmetric advantage** <br> Keirin Joyce |
| **17:00** | **End of Day** |

| Wednesday 4 December | |
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| 09:00 – 09:30 | **Invited Speaker 3** |
| 09:30 – 09.45 | Australian Defence Science and Universities Network (ADSUN): Driving Research Collaboration Across the Innovation Ecosystem |
| **Session 8: Biomechanics** | |
| 09.45 – 10.00 | **Assessing males and females during military-relevant loads and speeds– physiological, perceptual and spatiotemporal outcomes**<br>Danielle Vickery-Howe |
| 10:00 – 10:15 | **Augmented Reality display latency impacts perceptual and walking performance: Implications for Defence use of near-to-eye display technologies**<br>Jessica O'Reilly |
| 10:15 – 10.30 | **Implications of Task Ambiguity for Combat Shooting Training.**<br>Jack Bale |
| 10:30 – 10:45 | **Physical and physiological task demands across the Australian Army**<br>Greg Carstairs |
| 10:45 – 11:00 | **The effect of biological sex on lower-limb coupling variability in military personnel**<br>Brooke Hoolihan |
| **11:00 – 11:30** | **Morning Tea Break** |
| **Session 9: Resilience and Recovery** | |
| 11:30 – 11:45 | **Harnessing heat for healing: a novel approach to improve recovery from a concussion**<br>Joel Garrett |
| 11:45 – 12:00 | **Individual readiness monitoring in the Australian Army: A real-world implementation case-study of the Acute Readiness Monitoring Scale (ARMS).**<br>Richard Keegan |
| 12:00 – 12:15 | **Instrumented Mouthguards and Blood-Based Biomarkers for Enhanced Detection and Management of Head Impacts and Concussion**<br>Stuart McDonald |
| 12:15 – 12:30 | **Longitudinal Pupillary Light Reflex testing as a decision support tool in concussion management – a pilot feasibility study.**<br>Gordon Waddington |
| 12:30 – 12:45 | **Naturally derived peptides as host-protective treatments for severe influenza – a potential lung protective CBRN countermeasure**<br>Andrew Gearing |
| 12:45 – 13:00 | **The cumulative effects of consecutive days of prolonged, physical work or activity on thermal strain: A systematic review.**<br>Dan Moore |
| **13:00 – 13:45** | **Lunch Break** |

| | Session 10: Nutrition and Health |
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| 13:45 – 14:00 | **Assessing the energy intake and expenditure of Australian Navy recruits during intensive periods of entry-level training: Part 2.**<br>Shannon Fizer |
| 14:00 – 14:15 | **Co-designing targeted solutions for better health and performance**<br>Anna Kitunen |
| 14:15 – 14:30 | **Food labels for physically active individuals**<br>Nazila Babakhani |
| 14:30 – 14:45 | **Metabolic Perturbations in Australian Army Recruits undergoing Basic Military Training: An Analysis of the Multi-Stressor Environment**<br>Barnaby Frankish |
| 14:45 – 15:00 | **Optimising the Warfighter Cognobiome: novel microbiome interventions to improve the cognitive performance of Warfighters**<br>Emily Hoedt |
| **15:00 – 15:15** | **Break / intermission** |
| 15:15 – 15:45 | Closing Ceremony<br>Presentation of Awards<br>Closing remarks and thanks |
| **15:45** | **Conference Ends** |