Enhanced Human
& Team Performance

Enhancing personnel resilience and capability, including superior training and preparation for the strenuous cognitive and physical tasks associated with operations, or through significant improvements to cognition, endurance and protection during operations.

UWA conducts research to understand and enhance interactions between humans, technology and the operational environment to maximise individual and team process, cognition, and performance. This can provide decision-superiority and operational advantage across varied domains of warfare (air, maritime, land, space and information/cyber).

DEFENCE RESEARCH CAPABILITY CATEGORY: **ENHANCED HUMAN & TEAM PERFORMANCE**

UWA Competitive Advantage

- Collaborating on cognitive science and human factors-based innovations with the ADF and DST to maximise the resilience, responsiveness and adaptability of ADF individual operators and teams.
- Measurement of individual and team process and performance, workload, situation awareness, and perceptions of system trust and usability.
- Behavioural Insights for Technology Adoption in identifying which behaviours may constrain the adoption of new technologies to help address Australia's strategic challenges.
- Optimising operator task load and predicting risky behaviour using adaptive technology.
- Human perception and attention research to develop battle-ready platforms; including, development of visualisation tools; developing and evaluating augmented reality and virtual reality.
- Human-in-the-loop testing of innovative work design concepts in the submarine Control Room Use Simulation Environment (CRUSE) to achieve ADF undersea decision superiority
- Kinanthropometry and physiological function in challenging environments including body temperature regulations in hot and humid environments.
- Human and organisational factors and their role in maintenance dependability and reliability on Submarines in collaboration with the RAN.
- Combatting misinformation.

Outcomes and Impact

- Reliable and valid measures of situation awareness, workload, team process, and performance for Defence application.
- Personnel selection and training interventions to improve soldier situation awareness, workload management and battle-readiness.
- Empirical evidence-bases for best practice (work design) in ADF human-automation teaming settings.
- Evaluation of operator workload and performance under different technology concepts for augmented reality displays in battlefield environments.
- Innovative human-machine interfaces that optimise the integration of advanced robotics platforms with human counterparts.

Capabilities and facilities

Research Groups involved in this work include:

- Sensory Neuroscience, Attention and Perception (SNAP) Laboratory

Facilities include:

- Task simulation facilities (e.g., submarine command and control, uninhibited vehicle management, maritime/air contact classification, air traffic control, driving) for individual operator and team-level experimentation (human-in-the loop studies)
- Virtual reality (VR) facilities that simulate augmented display technology for dismounted combatants

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