



UNSW
SYDNEY



Human Factors and Aviation Safety Research Laboratory

The Human Factors and Aviation Safety Research Laboratory (HF laboratory) at UNSW is a purpose-built research facility designed to provide leading researchers the tools and resources to improve understanding of how humans function within the workplace (i.e., aircraft, cars, trains, offices, hospitals, etc).

Competitive Advantage

- The HF laboratory has state-of-the-art hardware to accurately reproduce operational environments to study human performance.
- Expertise in the area of human performance and cognition including perception, attention; memory and decision-making.
- Expertise in understanding how stressors and external influences impact cognition and performance.
- Expertise in understanding how humans function within a system under competing demands and pressures.
- Expertise in system design and processes to maximise human performance.

Impact

- Detailed understanding of human performance and the impact of certain factors on behaviour (Unmanned Aerial Vehicles in Surf Life Saving – Surf Life Saving NSW)
- Improved human performance
- Reduction in errors (Human Factors in Medicine – Clinical Excellence Commission)
- Improved efficiency
- Improved system design (Low Level Airspace Management Plan – AirServices Australia; VTC Charts in 3D for RPAS Operators – Civil Aviation Safety Authority)
- Improved workplace safety (Pilot Psychology – Australian Federation of Air Pilots)

Successful applications

The HF laboratory allows for research that leads to:

- Improvements in pilot risk management (decision-making under uncertainty)
- Advances in training methods designed to reduce risk-taking behaviour of pilots
- Understanding the effect of aircraft noise on pilot decision-making, including the effect of noise on memory, attention and perception
- Design of training programmes to reduce young drivers' speeding behaviour
- Improved understanding of the factors that result in miscommunication with pilots
- Design of features to improve the effect of the pre-flight safety briefing for commercial airline passengers
- Understanding factors that affect pilot psychological health and wellbeing
- Understanding the effect of workload and noise of RPAS operator performance.

Capabilities and resources

- Instrumentation (wireless) for state-of-the-art physiological measures - Eye tracking, EEG, skin conductance (suitable for use in the

More Information

Dr Brett Molesworth

School of Aviation

T: +61 2 9385 6757

E: b.molesworth@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61 (2) 9385 5008

majority of workplaces)

- Aircraft - Diamond DA40 (single engine), Piper PA44 (twin engine)
- Flight Simulators and Procedure Trainers - Frasca (Diamond DA40) flight simulator, Pacific Simulators 4.5 Multi-Crew Trainer (B737), Aerosim Q400 Virtual Procedure Trainer, Precision Flight Controls Flight Trainer
- Instrumented Vehicle – Mitsubishi ASX
- Driving Simulators – STISIM Drive, FORUM8
- Remotely Piloted Aircraft Systems – DJI Phantom 4 Pro with multispectral camera, DJI Mavic with thermal camera, DJI Matrice 210, Parrot Disco fixed wing.