



UNSW
SYDNEY



Trusted Autonomy

Trusted autonomy is a game-changing area of defence research centred on understanding and engineering the interaction space between humans and machines.

Competitive advantage

- Unique combination of skills covering robotics, AI, simulation and ethics
- Long-standing and deep ties with Defence
- Outstanding facilities for simulation and robotics
- Focus on trusted human-autonomy teaming

Impact

- More effective solutions to technological challenges including the deployment of autonomous vehicles, activities at the human-machine interface, high-fidelity military simulations and multi-robot operations in unknown and complex environments
- More agile and accurate decision-making cycles

Successful applications

- Swarm-based machine learning with knowledge sharing
- Demonstration of learning-to-fly from scratch on real unmanned aerial vehicles (UAVs) using neural networks and evolutionary fuzzy systems
- Demonstration of visual flight control of UAVs for flight in cluttered areas and landing on moving platforms
- Development of human performance surrogates for high-fidelity military simulations
- Hierarchical deep learning algorithms for robot control

Capabilities and facilities

- Large indoor UGV/UAV flight area and VICON motion capture system
- Distributed simulation laboratory
- Virtual environment and simulation laboratory
- EEG equipment for monitoring human cognitive state

Our partners

- Australian Army
- The Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Department of Defence Science and Technology (DST)
- Air Force Office of Scientific Research
- US Army
- Indonesian Institute of Sciences

More Information

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