

DIRECTOR OF AUTONOMY ACCREDITATION – AIR

ABOUT THE TRUSTED AUTONOMOUS SYSTEMS DEFENCE COOPERATIVE RESEARCH CENTRE

Trusted Autonomous Systems is Australia’s first Defence Cooperative Research Centre uniquely equipped to deliver world-leading autonomous and robotic technologies to enable trusted and effective cooperation between humans and machines. The Centre researches developments in trusted autonomous systems that may have the potential to transform ADF capability in the future.

Our aim is to: foster a competitive, productive and sustainable Australian industry primed to develop and deliver world-leading autonomous and robotic Defence technologies; build innovative IP through targeted research and technology programs; assist Australian industry to evaluate and showcase innovative autonomous technologies through capability demonstrations.

Specifically, Trusted Autonomous Systems aims to:

- develop highly self-sufficient and survivable systems
- develop highly self-determining and self-aware systems
- develop human-autonomy systems that are human and context aware
- increase the speed to reach a deployable state for trusted autonomous systems
- increase the scalability and reduce the cost of autonomous systems technology solutions
- educate in the ethics and legal aspects of autonomous systems
- advocate and form national policy and regulations.

BACKGROUND

The Queensland government’s goal is to position Queensland as the “Smart Drone State” for civil and Defence applications of Robotic and Autonomous Systems (RAS) and attract International investment. Safety accreditation for RAS use remains a principle barrier to achieving our goals. Accreditation is conducted by authorised National regulators for commerce and by Defence for ADF operations. Accreditation relies on demonstrating compliance with standards or defined codes of practice. Unfortunately, for systems with autonomous capabilities (e.g. for navigation, control, payload delivery, etc) no established standards or formal comprehensive codes of practice exist. As a result, operations are permitted only under highly conservative constraints as exception waivers issued by CASA/DASA, AMSA, State Vehicle Registration and other regulatory authorities.

ABOUT THE POSITION

One full-time position until December 2022 is available to research and guide an approach to regulation that would support more effective operationalization in the Air Domain.

The Director of Autonomy Accreditation — Air will create a body of knowledge and a case study pertaining to the existing regulation and potential future regulation of unmanned aerial vehicles (UAVs) in Australia. Topics of investigation include (but are not limited to) air traffic management, multi-agent collision avoidance, safety certificates and architectures, risk assessment, multi-objective optimization, decision-making and path planning.

KEY RESPONSIBILITIES

- Work under the direction of the Chief Scientist, and with the Assurance of Autonomy Project Manager and other Domain Leaders to develop an accreditation support body of knowledge (including frameworks, methods, processes, principles, standards or structures) in the domain area
- Develop and foster trusted relations between the Centre and stakeholders including Defence, ADF, DST, state and federal government regulatory bodies, research organisations and autonomous systems industries, and maintain a trusted status in understanding regulators' concerns;
- Survey industry practices in the design and testing of unmanned aerial vehicles;
- Build a comprehensive model of existing regulatory frameworks, methods, processes, standards, principles, codes of practice, test and evaluation protocols and exception precedents relevant to autonomous systems within domestic environments;
- Consult with: Autonomous systems developers and associations; businesses and users; testing ranges in air, land and maritime environments; assurance and insurance industries; and test and evaluation experts for regulation (e.g. air worthiness inspectors) to better understand practices and constraints.
- Research the regulation of AI, robotics and autonomous systems particularly sociotechnical and legal frameworks (inc. smart, digital and adaptive regulation) and new methods, policies, and practices to support accreditation of autonomous systems in air environments
- Lead the establishment of a National body of knowledge necessary to achieve technical accreditation and social license for autonomous systems use in the air domain.
- Contribute regulatory frameworks to the planning, design, development, iteration, test and evaluation of autonomous systems technologies in the air domain
- Progress accreditation support to encourage national and international test and evaluation of autonomous systems using Queensland testing ranges.
- Identify and manage a case study prototype of accreditation support with an unmanned aerial vehicle, industry partner and a Queensland test range;

- Manage the preparation of significant documentation as appropriate including: legal, technical and regulatory specifications, reports, guidelines, strategy and policy document, videos, brochures, interactive forms, website;
- Orchestrate networking events at an air test range for Centre stakeholders (including Qld gov. stakeholders (e.g. Ministers and ministerial staff, investment and policy advisors, and regulatory bodies) to promote progress;
- Establish and socialise best practice guidelines, polices and standards to support autonomous systems accreditation and regulatory approvals
- Engage and collaborate with other organisations as appropriate such as the Australian Robotics Network, Standards Australia, ISO, ASTM, FAA, EASA, JARUS, RTCA, Australian Association for Unmanned Systems (AAUS), AUVSI, Defence AI and Qld AI Hub

TYPE OF APPOINTMENT

Fixed-term, full-time basis until December 2022.

RENUMERATION

\$165-175K pa (Package inclusive of Superannuation)

LOCATION

Brisbane preferred, negotiable with travel to Brisbane as required.

SELECTION CRITERIA

ESSENTIAL

- Demonstrated experience in regulation of autonomous systems in the air domain.
- Demonstrated ability to work effectively and collaboratively as part of diverse, high performing teams.
- High level communication skills including research, analytical thinking and problem solving, facilitation, interpersonal, collaborative and consultative skills
- Details oriented and capable of delivering a high level of accuracy
- Ability to work in teams to understand autonomous systems including intentions, functions, planning, and behaviours
- Ability to obtain and maintain an appropriate level of security clearance (sponsored by TASDCRC).

DESIRABLE

- Knowledge of and experience with Industry, Government, Defence & Research institutions relevant to the Centre.
- Postdoctoral qualifications (or equivalent experience) in law, regulation and certification of transport technologies AI and autonomous systems



- Knowledge and experience in one or more of AI, robotics, or autonomous systems
- Experience working in agile teams
- Project management experience

INFORMATION FOR APPLICANTS

Applicants who have unrestricted work rights in Australia for the duration of the fixed-term appointment. Aboriginal Australians and Torres Strait Islander people are encouraged to apply.

The eligibility for a Baseline security clearance, which requires Australian citizenship, is TASDCRC's expectation for selection of key project or activity personnel. An inability to receive a security clearance may create significant practical limitations on the type of work that can be undertaken by an individual. More information on the security clearance process can be found at:

<https://www1.defence.gov.au/security/clearances>

For further information about the position, please contact Kate Devitt, Chief Scientist
kate.devitt@tasdcrc.com.au

HOW TO APPLY

When applying for this position your application must include the following:

- Cover statements outline your basis for the application
- A document with written statement in response to each of the selection criteria with reference to key responsibilities
- A current resume
- The names and contact details of three referees.

Please send application to info@tasdcrc.com.au by Fri 28 Aug 2020