



Information Pack

Position Title:	Defence Science & Technology Group: Graduate and Post-Doctorate Opportunities
Job Reference Number:	
Position APS Level:	S&T3-4 (below) \$63,236- \$74,331 S&T3-4 (above) \$76,023- \$86,844
Position Location:	Various (SA, ACT, VIC, NSW, WA, & TAS)
Position/s:	Multiple
Employment Status:	Ongoing
Security Level:	Baseline
Group:	Defence Science and Technology Group
Enquiries:	Graduate.recruitment@dsto.defence.gov.au
Closing Date:	1 February 2016 12:00am (AEDT), No extensions will be granted and no late applications will be accepted.

One APS Career...Thousands of Opportunities

About this Information Pack

This information pack provides useful material regarding the role that you are applying for and further advice to guide you with your application.

Overview

DST Group Graduate and Post Doctorate Opportunities provide recent high-performing STEM graduates a foundation to commence their research career.

DST Group recruits Graduates into specific permanent positions within priority research areas aligned with [DST Group's Strategic Plan 2013-18](#). Opportunities are available for graduates and post-docs who have completed an Undergraduate, Honours, Masters or PhD in a relevant discipline within one of the following broad areas of work (BAOW):

- Engineering & Systems Science
- Human, Social & Health Sciences
- Information, Computing & Communications
- Mathematics
- Physical Sciences

What DST Group Offers

DST Group offers more than a job, it provides you with a career!

- DST Group believes in offering its staff a career, not just a job. This starts with permanent employment and generous learning and development opportunities to support you throughout your career.

Learn from the best

- Not only will you be supervised by a senior scientist, you are also encouraged to participate in DST Groups mentoring program to help gain and expand your skills and knowledge from Australia's brightest and most innovative scientists, engineers and IT specialists at the forefront of international defence research.

Work Content. More than π in the sky

- At DST Group, you will have access to leading edge technology and experience a stimulating and dynamic environment that fosters innovation and creativity. You will be proud to know that your research will contribute to Australia's future defence and national security capability.

Further Information

If you require further information please email the contact officer on the front of this Information Pack.

Organisation Description

DST Group's mission:

DST Group is the Australian Government's lead agency charged with applying science and technology to protect and defend Australia and its national interests. It delivers expert, impartial advice and innovative solutions for Defence and other elements of national security.

DST Group's vision:

To be a world leader in defence science and technology – indispensable in transforming the Australian Defence Force and Australia's national security.

To achieve its mission and vision, DST Group:

- Provides scientific and technical support to current defence operations.
- Investigates future technologies for defence and national security applications.
- Ensures Australia is a smart buyer and user of defence equipment.
- Develops new defence and national security capabilities.
- Enhances existing capabilities by increasing performance and safety, and reducing the cost of ownership of defence assets.
- Works collaboratively with other government agencies to strengthen national security.
- Assists industry to better support Defence capability needs.

Further information about DST Group is available at www.dsto.defence.gov.au.

Selection Criteria

Applicants will be assessed against the following five selection criteria:

- Academic Ability
- Science, Technology and Problem Solving Skills
- Communication, Team and Interpersonal Skills
- Motivational and Cultural Fit
- Flexibility and Adaptability

DST Group undertakes a holistic approach to the selection of candidates. Each criterion will be assessed throughout specialized activities and methods including written application, assessment center, presentation, and interview.

As part of the written application process, you are required to answer the following selection criteria questions:

1. Using an example from your background, describe how **YOU** planned and conducted a research or engineering project.

Provide details regarding:

- *the purpose and nature of the research;*
- *what analytical tools/techniques you used;*
- *issues/problems you had to overcome; and*
- *the project outcome.*

2. Describe why you want to work at DST Group.

You may wish to provide details regarding:

- *Your interest in a specific DST Group work program/ area*
- *How you would contribute to DST Group's Objectives*
- *Career plan or strategy to achieve your goals*

3. Give an example of when you had to adjust quickly to changes over which you had no control.

Provide details regarding:

- *the nature of the changes;*
- *the strategies you used to cope with the situation;*
- *the outcome of your efforts; and*
- *what you would do differently next time (if relevant).*

You should be mindful that all information contained in your application must be 'UNCLASSIFIED'. Applications containing classified information will not be considered by the selection delegate.

Qualifications / Additional Requirements

- Completed a relevant Undergraduate, Honours, Masters, or PhD Degree within the last 2-years or by 30 June 2016.
- Most positions have a minimum academic requirement of either an Honours or PhD degree (please check specific role description)
- Positions with a minimum of a Bachelor Degree have a Credit average GPA requirement.
- Must be available to attend a face-to-face assessment center at the designated time (February/March 2016)

RecruitAbility Scheme

The Department of Defence is committed to the employment and career development of people with disability. Our participation in the APS RecruitAbility scheme means we will progress an employee with disability to a further stage in the recruitment process where they opt into the scheme and meet the requirements for the position.



supporting
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applicant
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How do I opt into the RecruitAbility scheme?

You will be asked to indicate if you wish to opt into the RecruitAbility scheme in the Diversity section of the application form. You must tick the 'opt in' box to participate in the scheme. Simply declaring that you have a disability will not automatically include you in the scheme.

Reasonable adjustments

We provide reasonable adjustments such as access, equipment or other practical support at relevant stages of the recruitment process. Please contact the Contact Officer listed on the first page of this information pack if you need any adjustments made.

Details about the RecruitAbility scheme can be found at the Australian Public Service Commission's website, see: <http://www.apsc.gov.au/disability/recruitability>.

What do we mean by disability?

For the purposes of the scheme, 'disability' is:

a limitation, restriction or impairment which has lasted, or is likely to last, for at least six months and restricts everyday activities. This includes:

- *loss of sight (not corrected by glasses or contact lenses)*
- *loss of hearing where communication is restricted, or, an aid to assist with or substitute for hearing is used*
- *speech difficulties*
- *shortness of breath or breathing difficulties causing restriction*
- *chronic or recurrent pain or discomfort causing restriction*
- *blackouts, fits, or loss of consciousness*
- *difficulty learning or understanding*
- *incomplete use of arms or fingers*
- *difficulty gripping or holding things*
- *incomplete use of feet or legs*
- *nervous or emotional condition causing restriction*
- *restriction in physical activities or in doing physical work*

- *disfigurement or deformity*
- *mental illness or condition requiring help or supervision*
- *long-term effects of head injury, stroke or other brain damage causing restriction*
- *receiving treatment or medication for any other long-term conditions or ailments and still restricted*
- *any other long-term conditions resulting in a restriction.*

The two parts of the definition are the presence of a limitation, restriction or impairment which restricts everyday activities; and the expected longevity of the condition (6 months or more). This also includes episodic conditions.

The definition covers many types of disability. You do not need evidence of your disability to opt into the scheme, but you are making a declaration to the APS that you meet the definition.

Diversity and Inclusion

The range and nature of work in Defence requires a workforce that reflects our diverse society. We welcome applications from Indigenous Australians, people from diverse cultural and linguistic backgrounds and people with disabilities. We are committed to providing an environment that values diversity and supports employees to reach their full potential.

Defence will accommodate all requests for reasonable adjustment for people with disabilities to assist in the application process and if successful, the inherent requirements of the position.

If you have individual requirements that need to be accommodated in order to participate in an interview or assessment centre please inform the contact person listed on the front of this Information Pack.

For confidential advice contact: diversitypolicyandprograms@defence.gov.au.

Relocation Assistance

To be negotiated

Employment Agreement

Terms of the Engagement

The successful applicant for the position noted in this Information Pack will be engaged under the *Public Service Act 1999*.

Remuneration Package

In accordance with Defence Enterprise Collective Agreement ([DECA](#)) 2012 - 2014 the successful candidate will receive an attractive remuneration package with a salary within the range noted on the front page of this Information Pack and superannuation paid in accordance with legislative requirements.

Workplace Flexibilities

Defence assists its Australian Public Service (APS) employees to balance their work and lives through the provision of flexible working arrangements and conditions, flexible leave arrangements and by promoting wellbeing in the [Defence Enterprise Collective Agreement 2012-2014 \(DECA\)](#).

For more information on workplace flexibilities within Defence, please refer to our Work Life Balance site at <http://www.defence.gov.au/apscareers/whatweoffer/work-life-balance.htm>.

Australian Public Service Values

The Australian Public Service have Values and Employment Principles that shape the organisational culture of the Public Service. The Australian Public Service is:

- Impartial
- Committed to Service
- Accountable
- Respectful
- Ethical

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The values and employment principles can be found at the [Australian Public Service Commission website](#).

Defence Values

The Department of Defence has a framework of values that work alongside the [APS Values](#) and the values of [Navy](#), [Army](#) & [Air Force](#) to reflect the traditions and identities of the Australian Defence Force (ADF) and the APS. The values underpin the Defence corporate culture, contribute to achieving organisational goals and the basis of the behaviours expected of our people and leaders; both APS and ADF.

The Defence Values:

Professionalism	Striving for excellence in everything we do.
Loyalty	Being committed to each other, our leaders and the organisation.
Integrity	Doing what is right.
Courage	The strength of character to do what is right – extending to both courage of convictions (moral courage) and courage in harm's way (physical courage).
Innovation	Actively looking for better ways of doing business.
Teamwork	Working together with respect, trust and a sense of collective purpose.

Application Instructions

If you need access to a computer to complete your application, [internet café locations](#) can be found on our APS Careers @ Defence website.

We recommend you start your application on eRecruit as soon as possible. It is best to complete your Selection Criteria in Microsoft Word then copy, paste and save each criterion into the system.

For more information please refer to the [eRecruit Applicant User Guide](#).

All applications must be submitted through the online application system prior to the closing date.

NOTE: Do not withdraw your application for editing. **Once you have withdrawn your application, you will NOT be able to re-submit it or submit another application for this vacancy.**

Further advice on addressing selection criteria can be found the '[Cracking the Code](#)' publication located on the Australian Public Service Commission website.

You do not need to include written referee reports with your application. However, you should include the names and contact details of two referees who can comment on your work performance. We expect that one of your referees will be your current supervisor or manager. If you don't want us to contact your referees without advising you first, indicate this in your application.

Vacancies will be extended **in exceptional circumstances only**. Applicants requesting an extension **must** contact the Contact Officer **24 hours prior** to the vacancy closing date.

PLEASE NOTE: **APS Careers @ Defence** is for job seekers only. We do not accept unsolicited resumes or applications from recruitment agencies and/or search firms and will not pay fees to any such organisations unless arranged with the provider prior to advertising the vacancy.

Withdrawing an Application

If you have submitted an application and no longer wish to be considered for the position, you must withdraw your application in eRecruit.

If you withdraw your application **after the closing date**, please **inform the Contact Officer** through the phone number and/or email address on the front page of this Information Pack.

PLEASE NOTE: Once you withdraw your application you will NOT be able to re-submit it or submit another application for this vacancy.

For more information on withdrawing your application via the APS Careers @ Defence eRecruit system, please refer to our [eRecruit Applicant User Guide](#).

The Selection Process

Defence APS recruitment processes are based on merit which means that we select the best person for the job from a field of applicants. We compare and weigh-up the skills, experience and abilities of each applicant and often use different tools and techniques (such as written applications, interviews and/or work sample tests) to collect the evidence needed to make a merit-based decision.

Merit List

A merit list may be created from the list of suitable applicants which may be used to fill similar position/s in the event a position/s becomes vacant within the 12 months from gazettal date of this position.

Psychological Assessment

Some positions at DST Group require that shortlisted applicants undertake a Psychological Assessment to determine organisational suitability. Psychological assessments are conducted to determine suitability to work in a high security environment and/or to hold a Top Secret (Positive Vetting) (TSPV) security clearance.

The Psychological Assessment is an integrated assessment tool which comprises the completion of a consent form, written psychological tests, a face-to-face interview(s) with a registered psychologist, and a written report completed by the interviewing psychologist. You may be asked to participate in further psychological testing if required. The assessment is administered in a manner which ensures informed consent, fair dealing with all applicants and employees, and the greatest possible degree of privacy and transparency of process.

Questions may include but are not limited to personal relationships, living circumstances, personal values, financial situation, physical and mental health history including substance use, and any civil and/or military record. The process is necessarily more intrusive than you will encounter in most other employment applications but it is important that you be honest and accurate in disclosing details about yourself.

Eligibility

Employment with the Department of Defence is subject to conditions prescribed within the Public Service Act 1999.

Citizenship - To be eligible for employment with Defence, applicants must be an Australian citizen. Only in exceptional circumstances can this requirement be waived.

Health Assessment – The preferred applicant will be required to undergo a medical examination conducted by the Department's preferred medical provider.

Security Clearance - The preferred applicant will be required to successfully undergo the security clearance vetting process at a specified clearance level. The preferred applicant **MUST** be willing to disclose all relevant and required information.

The preferred applicant **MUST** have lived in Australia, or have a checkable background, for at least the preceding:

- **Five** years for BASELINE clearances, or
- **Ten** years for NEGATIVE VETTING 1 / NEGATIVE VETTING 2 or TOP SECRET POSITIVE VETTING clearances.

Please note that the security clearance level required for this position can be found on the front page of this Information Pack.

More information on the security clearance vetting process is available on the [Australian Government Security Vetting Agency \(AGSVA\) website](#).

Thank you for your interest

Department of Defence

AD001 EXPERIMENTAL AERODYNAMICS

Location: Fishermans Bend, Victoria

Overview:

As member of DSTO's Aerospace Division, you will be working in small team involved in the planning, conduct, analysis and reporting of aerodynamic experiments. This work will be carried out in specialist test facilities including the DST Group Low-Speed Wind Tunnel (LSWT), Transonic Wind Tunnel (TWT), and Water Tunnel, where you will conduct experiments that aim to resolve complex problems in flow-fields around air-vehicles (i.e. both manned and unmanned), weapons, and maritime systems. You will be expected to use dedicated computer systems and software tools, data acquisition systems and specialised instrumentation, including laser equipment. Outcomes from your work will directly support a number of major Defence programs, strategic research initiatives, as well as collaborations with industry and academia.

Academic Requirement:	Other Role Specific Requirements:
<p>An Honours or PhD in one or more of the following areas:</p> <ul style="list-style-type: none">• Aerospace Engineering• Mechanical Engineering	<ul style="list-style-type: none">• Apply knowledge and skills in aerodynamics to conduct experiments that aim to resolve complex problems in flow-fields around air-vehicles, weapons, and maritime systems.• Demonstrate knowledge and understanding of the principles of fluid mechanics across a spectrum of flow-regimes from low-speed to transonic conditions.• Plan and conduct research to generate new or to enhance knowledge and capabilities in the areas of experimental aerodynamics.• Demonstrate knowledge and skills in instrumentation and data acquisition systems applicable to wind tunnel experimentation, with an interest in expanding expertise in these areas.• Sound knowledge of data analysis tools and methods.• An aptitude for mechanical design.• Possess good written and oral communication skills, supported by a sound publication record.• An ability and willingness to work under broad direction and to contribute to team objectives and goals.• Demonstrate ability to meet deadlines.• An ability to document the results in technical reports and/or scientific papers to a high professional standard.

Notes:

Appointees will be initially engaged on a BASELINE security clearance with a requirement to upgrade this clearance to **SECRET/ Negative Vetting Level 1** upon commencement.

Position Specific Written Application Question:

Describe a situation where you have used an experimental method to solve a complex problem? (200 words max)

AD002 AUTONOMOUS SYSTEMS SCIENCE (HUMAN AUTONOMY TEAMING)

Location: *Fishermans Bend, Victoria*

Overview:

As an Aerospace Division member, you will contribute to a research program aimed at enhancing aerospace capability by applying autonomous systems that team effectively with human operators.

The focus of the research will be on human autonomy teaming, investigating the fundamental underpinnings of human autonomy teaming and ways to enhance this teaming, particularly in the kinds of complex, dynamic, and uncertain environments where the resilience of this partnership is most tested. The research program will include investigations of:

- Intelligent systems to support operator situation awareness, planning, and decision making;
- Variables influencing human-autonomy interactions;
- Methods and interfaces to support dynamic adjustable autonomy;
- Intuitive interaction methods for human-autonomy dialog, supporting transparency and trust;
- Human autonomy teaming in multi-asset supervision and control; and
- Measures of human autonomy teaming effectiveness.

Academic Requirement:	Other Role Specific Requirements:
A PhD in at least one of the fields: <ul style="list-style-type: none">• Cognitive science• Cognitive psychology• Human factors• Computer science	Demonstrated experience with any or all of the following: <ul style="list-style-type: none">• Cognitive modelling, especially of perception, situation awareness and decision making processes• Use of computational intelligence (i.e. artificial intelligence, intelligent agent, and machine learning techniques) to support human situation awareness, planning and decision making;• Human-machine interface design and evaluation;• Simulation-based experimentation;• Ability to work in field settings and liaise with stakeholder groups; and/or• Design, conduct, and reporting of experiments/trials involving human participants.

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **SECRET/ Negative Vetting 1** Security Clearance required upon commencement.

Position Specific Written Application Question:

As the focus of this position will be on research into human-autonomy teaming, why is consideration of this teaming essential for enhancing future military capability? How would you apply your skills and experience to investigating this issue? (200 words max)

AD003 DEFENCE SYSTEMS ANALYSIS

Location: Fishermans Bend, Victoria

Overview:

As an Aerospace Division (AD) member, you will contribute to a program to identify and develop novel logistics concepts as part of Royal Australian Air Force (RAAF) Plan Jericho Transformation Theme C - Changing the way RAAF acquires and sustains capability.

This position will assist in AD support of Plan Jericho Implementation Directive 11 – Integrate Logistics into the Battlespace in the following areas:

- How to link federated support and maintenance systems to facilitate planning and decision making ;
- How to optimise maintenance and logistics to support joint force and innovation objectives;
- How to improve management of logistics commons;
- How to improve sustainment outcomes and/or reduce costs;
- How to use Live, Virtual, Constructive simulation and experimentation to improve maintenance and logistics outcomes; and
- How to use war-gaming to improve acquisition and sustainment decision making

There is flexibility to tailor the role to skillset of the successful applicant.

Academic Requirement: An honours or PhD in one of the following areas: <ul style="list-style-type: none">• Mathematics• Systems Engineering• Informatics/Computer Science• Service Science• Decision Systems/Sciences Other related academic areas: <ul style="list-style-type: none">• Economics/Econometrics• Business Analysis• Logistics and Supply Chain	Other Role Specific Requirements: Demonstrated abilities in more than one of the following: <ul style="list-style-type: none">• Capacity to deal with high levels of ambiguity and uncertainty• Structuring of wicked problems• Analysis of complex interacting systems• Collaboration on multi-disciplinary problems• Modelling and simulation of complex socio-technical issues• Analysis and synthesis to support strategic decision making
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Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Negative Vetting1/Secret** required upon commencement.

Position Specific Written Application Question:

How could you use your knowledge, skills and tools to inform a strategic decision-maker on the question:

“Should a nuclear power capability be developed to meet Australia’s future energy needs?” (200 words max)

CEWD001 COGNITIVE SIGNAL PROCESSING RESEARCH

Location: Edinburgh, South Australia

Overview:

As a Cognitive Signal Processing Researcher (Scientist or Engineer), you will support Australia's Defence and National Security communities by broadly undertaking R&D in techniques for radio frequency (RF) intercept and signal exploitation.

Under guidance of senior staff, your role will include the following activities and objectives:

- Participate in team-based R&D activities with a focus on the development of novel mathematical and statistical-based techniques as they relate to cognitive signal processing for RF intercept;
- Contribute to the development of software in support of real-time and off-line cognitive signal processing technology demonstration;
- As part of a team, develop and deliver technology that addresses the requirements of Defence and National Security clients;
- Contribute to the preparation of scientific papers for internal and external publication.

Academic Requirement:	Other Role Specific Requirements:
<p>An Honours degree in one of the following areas (or similar):</p> <ul style="list-style-type: none">• Applied Mathematics;• Mathematical Statistics;• Computer Science;• Computer Systems Engineering;• Electronic Engineering.	<p>Demonstrable understanding and practical experience in several of the following:</p> <ul style="list-style-type: none">• Mathematical Statistics;• Signal Processing;• Artificial Intelligence & Machine Learning;• Software-based Modelling & Simulation in Matlab, Java, or C/C++.

Notes:

Appointees will be initially be engaged on a **BASELINE** security clearance with an upgrade to a **Negative Vetting 1/ Secret Security Clearance** required upon commencement.

A Secret clearance is the minimum security clearance requirement for this role, although higher security clearances may be required after commencement.

Written Application Position Description Question:

Please provide one or more specific examples that demonstrate your technical understanding and practical experience relevant to this position. (200 words max)

CEWD002 CYBER SECURITY SCIENCE/ TECHNOLOGY- AUTOMATED VULERNABILITY ANALYSIS

Location: Edinburgh, South Australia

Overview:

As a Cyber Security Researcher in the Automated Analytics & Decision Support group, within the Cyber & Electronic Warfare Division, you will work on novel techniques and software technologies to understand and improve the security posture and operational survivability of complex cyber-physical systems of importance to Australia; specifically to our Military and National Security communities.

Under guidance of senior staff, your role will include the following activities and objectives:

- Participate in R&D activities with a focus on the development of software technologies for automated vulnerability analysis of mission dependent cyber-physical systems;
- Investigate and develop new concept demonstrators and software technology elements relevant to automated vulnerability analysis;
- Develop and deliver technology addressing the requirements of Military and National Security clients;
- Prepare to scientific publication standard, papers discussing the work undertaken;
- Assist in the installation and maintenance of group S&T infrastructure, including computer systems and networks in support of R&D and client tasks

Academic Requirement:	Other Role Specific Requirements:
An Honours degree or PhD in one of the following areas (or similar): <ul style="list-style-type: none">• Computer Science• Computer Systems Engineering	Demonstrable understanding and practical experience in several of the following: <ul style="list-style-type: none">• Artificial Intelligence & Machine Learning• Data Analytics• Complex Systems Analysis• Modelling & Simulation Knowledge and practical experience in the following is desirable: <ul style="list-style-type: none">• Cyber Security• Visual Analytics• Software Engineering

Notes:

Appointees will be initially be engaged on a **BASELINE** security clearance with an upgrade to a **Top Secret Negative Vetting (TSNV) Security Clearance** required upon commencement.

A TSNV clearance is the minimum security clearance requirement for this role although higher security clearances may be required after commencement.

Written Application Position Specific Question: (Max 200 words response)

“Explain how your knowledge, skills and attributes can be applied to the field of cyber security research?”

You may wish to consider aspects such as:

- Your personal attributes such as problem solving , initiative, teamwork and learning ability
- Your technical knowledge in areas such as Artificial Intelligence, Machine Learning, Data Science and Cyber Security.
- Your experience in programming and developing software applications.

CEWD003 COMMUNICATIONS NETWORKS ENGINEERING RESEARCH

Location: Edinburgh, South Australia

Overview:

As a member of Survivable Networks Group, you will contribute to the research and development of novel techniques supporting survivability of military tactical networks. Under broad supervision, your role will include:

- Design and engineering of autonomous communications systems;
- Communications network analysis using modelling and simulation;
- Design and execution of laboratory and field experiments of military communications systems.

In addition, you will contribute to advice provided to Defence clients in the area of communications networks.

Academic Requirement:

Honours degree in one of the following areas:

- Computer Science
- Computer Systems Engineering
- Electrical Engineering or a related discipline.

Other Role Specific Requirements:

1. Ability to apply scientific and engineering principles and concepts.
2. High level of initiative and self-motivation.
3. High level of oral and communications skills.
4. Demonstrated knowledge in one or more of the following:
 - Mobile networks (highly desirable)
 - Mathematical modelling and simulation (highly desirable)
 - At least one high level programming language (highly desirable)
 - Autonomous systems (desirable)
 - Multi-agent systems (desirable)
 - Distributed systems (desirable)
 - Artificial Intelligence (desirable)
 - Machine learning (desirable)

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to **Negative Vetting 1/ SECRET** required upon commencement.

Written Application Position Specific Question:

What are the types of radio network technologies you have demonstrated knowledge in?
(200 words max)

CEWD004 ELECTRONIC WARFARE

Location: Edinburgh, South Australia

Overview:

As a member of the RF Electronic Attack Group in DST Group's Cyber & Electronic Warfare Division, you will contribute to a program investigating novel electronic attack techniques and technologies to address the threat posed to the Australian Defence Force (ADF) from the radars and RF missile seekers associated with future military weapons systems. Initially, this position will investigate adaptive and cognitive Electronic Warfare (EW) concepts, techniques and technologies for application with the Royal Australian Air Force (RAAF). However, in the mid-term this position may also support the application of adaptive and cognitive EW to the maritime domain.

There is flexibility to tailor this role to the skillset of the successful applicant – potentially covering development of machine learning algorithms for the real-time optimization of EA techniques through to the implementation and demonstration of adaptive and cognitive EW concepts.

Academic Requirement:

A PhD in one of the following areas:

- Physics
- Engineering
- Computer Science
- Mathematics

Other Role Specific Requirements:

Demonstrated experience with any or all of the following:

- Electronic Warfare, particularly the development, test and validation of RF countermeasures;
- Analysis of radar and/or weapons systems performance
- Application of machine learning and computational intelligence to system optimisation and autonomy
- Application of model-based design principals to real-time system development
- Modelling & simulation of complex systems
- Test & Evaluation of complex systems

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Negative Vetting Level 1** Security Clearance required upon commencement.

Position Specific Written Application Question

Imagine working as a part of multi-disciplinary team, on a focused EW task, using cutting edge technology, knowing that some one's life hinged on the outcome? What skills or attributes would you need, to contribute effectively to the team's outcomes? (200 words max Response)

CEWD005 NETWORK SECURITY SCIENCE/ TECHNOLOGY– NETWORK VULNERABILITY ANALYSIS

Location: Edinburgh, South Australia

Overview:

As a Network Security Researcher in the Communication Networks Research Science and Technology Capability (STC), you will be part of a team working on novel techniques to protect networks of national interest; specifically Australian Government and critical infrastructure.

Under guidance of senior staff, your role will include the following activities and objectives:

- Participation in R&D activities with a focus on developing technologies for network security; especially discovery of network control protocol vulnerabilities;
- Modelling and emulation of communication networks with a strong focus on the network control plane;
- Investigating and developing new concept demonstrators and software technology elements relevant to the analysis of communication networks;
- Developing and delivering technology addressing the requirements of Defence and National Security clients;
- Preparing to scientific publication standard, papers discussing the work undertaken;
- Assisting in the installation and maintenance of STC Science and Technology (S&T) infrastructure, including computer systems and networks in support of R&D and client tasks

Academic Requirement:	Other Role Specific Requirements:
<p>An Honours degree or PhD in one of the following areas (or similar):</p> <ul style="list-style-type: none">• Telecommunications or Computer Network Engineering• Computer Science• Electrical and Electronic Engineering• Information Technology (Networking)	<p>Demonstrable understanding and practical experience in several of the following:</p> <ul style="list-style-type: none">• Network architectures• Network and cyber security• TCP/IP protocol suite• Software programming• Modelling and simulation <p>Knowledge and practical experience in the following is desirable:</p> <ul style="list-style-type: none">• Communication systems• Network technologies• Switching and routing protocols

Notes:

Appointees will be initially be engaged on a **BASELINE** security clearance with an upgrade to a **Top Secret Positive Vet (TSPV)** clearance required upon commencement as the minimum clearance for this position. A preparedness to submit to a Top Secret Positive Vetted clearance is essential for this role.

Position Specific Written Application Question:

Telecommunication systems have undergone enormous changes over recent times. What do you believe has been the most exciting and disruptive change that has occurred in computer networking and why? (200 words max)

JOAD001 MARITIME CAPABILITY ANALYSIS

Location: Sydney

Overview:

As member of DSTO's Joint and Operations Analysis Division, you will undertake analysis, develop models and conduct research in support of improving maritime warfare capability. The Maritime Capability Analysis science capability supports the Royal Australian Navy's current and future Fleets by providing balanced, impartial and timely advice that supports decisions about maritime capability. The role will contribute to key activities including:

- Experimentation to investigate future concepts and capabilities;
- Analysis to inform the needs and requirements of future capabilities;
- Analysis of options/alternatives against future capability requirements;
- Analysis of operations and exercises to generate knowledge that enables improvements in warfighting capability;
- Research to develop innovative analysis approaches.

There is flexibility to tailor this role to skillset of the successful applicant, that is the role could be biased towards mathematical science or modelling, simulation, experimentation and wargaming.

Question for this role: How could you use your qualifications and skills to help the Royal Australian Navy make better decisions on capability?

Academic Requirement:	Other Role Specific Requirements:
<p>A PhD in one of the following areas:</p> <ul style="list-style-type: none">• Mathematics• Computer Science• Physics• Operations Research	<p>Demonstrated experience, or ability, in any or all of the following areas:</p> <ul style="list-style-type: none">• Mathematical modelling of systems;• Developing, employing and interpreting modelling and simulation tools;• Statistical Analysis;• Application of Operations Research techniques to problem definition, structuring and solving;• Undertake innovative and high quality analysis of operations and/or systems;• Mathematical optimisation;• Computer programming to support modelling, simulation, data capture and analysis or war gaming; and/or• Experiment design and analysis.

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Secret/ Negative Vetting 1 Security Clearance** required upon commencement.

Written Application Position Specific Question

How could you use your qualifications and skills to help the Royal Australian Navy make better decisions on capability? (200 words response max)

JOAD002 FORCE DESIGN ANALYSIS

Location: Fairbairn Business Park, Canberra

Overview:

The First Principles Review of Defence has placed a high priority on Force Design, and this position will be at the heart of DST Group's support to designing the future capability of the ADF. As a member of DST Group's Joint and Operations Analysis Division, you will support the conceptual design and development of a defence force posture, including force structure, preparedness and physical disposition. You will apply and develop tools and techniques that shape and support the Defence Department processes to deliver a future force that is effective, efficient and affordable. This covers a range of areas including, *inter alia*:

- Force structure design and analysis
- Force structure systems representation and visualisation
- Force structure costings and balance of investments
- Defence investment program assessment and management
- Decision support tools design, development and application

There is some flexibility to tailor this role to the current skillset of the successful applicant.

Academic Requirement:

An Honours/ Masters / PhD in one or more of the following areas:

- Systems Science/Engineering
- Management and Organisational Sciences
- Operations Analysis
- Physical Sciences
- Engineering
- Mathematics and Computer Sciences
- Social and Experimental Sciences

Other Role Specific Requirements:

Demonstrated experience with one or more of the following:

- Knowledge of defence force structure and strategic planning
- Modelling of physical or organisational systems
- Analysing open-ended, complex or "wicked" problems
- Design and construction of software tools, such as interactive GUI and databases.
- Design and analysis of organisations and business processes
- Design and execution of social experiments

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **SECRET NV1** required upon commencement.

Written Application Position Specific Question:

Imagine DST Group has been asked to apply analytical techniques and knowledge of emerging technologies to help design a capability which could lead Humanitarian Assistance and Disaster Relief operations in our region in the 2020's. What sorts of issues would need to be considered? (200 words response max)

JOAD003 SOCIAL/ MANAGEMENT SCIENCE

Location: Edinburgh, South Australia / Fairbairn Business Park, Canberra

As member of DSTO's Joint and Operations Analysis Division, you will contribute to developing and applying techniques and tools that support analysis and assessment of Headquarter organisational structures / procedures and future Australian Defence Force operating concepts, guided by the following considerations:

- Improving the effectiveness and efficiency of key headquarter functions;
- Developing tools and techniques to explore future Joint headquarter structures and processes and systems;
- Development of evaluation frameworks that support organisational learning; and
- Application of knowledge elicitation and problem definition techniques to inform concept development.

An important aspect of this role will be the need to work as part of multi-disciplinary teams involving mathematicians, systems engineers and simulation, experimentation and war gaming practitioners.

This role will involve increasing client engagement within a military environment as the candidate gains experience and applies their skills over their initial 2-3 years employment.

<p>Academic Requirement: An Honours/ Masters / PhD in one of the following areas:</p> <ul style="list-style-type: none">• Psychology• Social Sciences• Management Sciences <p>Other relevant discipline(s)</p> <ul style="list-style-type: none">• Public Policy	<p>Other Role Specific Requirements: Demonstrated experience with any or all of the following is desirable:</p> <ul style="list-style-type: none">• High level of verbal and written communication skills• Engaging stakeholders on problem definition or program development• Application of qualitative techniques (systems thinking approaches) to large / complex problems• Experience engaging with Defence / National Security / other government agencies or relevant NGOs• Policy development
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Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Negative Vetting 1/ Secret Security Clearance** required upon commencement.

Written Application Position Specific Question:

Please describe your specific skills and experience that relate to the definition/scoping of complex problems and the development of commensurate actions or policy initiatives for improvement. (200 words response max)

LD001 BIOINFORMATICS

Location: Fishermans Bend, Melbourne

Overview:

As member of DSTO's Land Division, you will be responsible for bringing in-house capabilities in bioinformatics analysis to support client focused Defence projects. LAND has an increasing focus on the use of Next Generation Sequencing technologies across multiple projects including de novo sequence analysis for detection and identification of viruses and bacteria, forensic genotyping and RNA responses to chemical and biological challenges. The applicant will be expected to use their bioinformatics expertise to support research groups across a range of disciplines.

The role requires the development and implementation of data analysis pipelines for a variety of genomic analysis. This will include but not be limited to assembly of genomic sequences, transcriptomic analysis, variant calling and population genetics.

Academic Requirement: <ul style="list-style-type: none">• An appropriate PhD in Computational Biology and/ or Bioinformatics	Other Role Specific Requirements: <ul style="list-style-type: none">• Experience and expertise in the processing, analysis and visualisation of large-scale biological datasets.• Experience in mining complex 'omics' datasets• Experience working in a Linux environment with programming skills in one or more of R, C/C++, python or perl and SQL• Knowledge of and demonstrated use of bio-python and or bio-perl• Experience in the delivery of in-house web based bioinformatics tools
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Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with a requirement to upgrade this clearance to **SECRET/ Negative Vetting Level 1**.

Written Application Position Specific Question:

Explain how you would analyse an RNA-Seq transcriptomic experiment when there is no reference genome available. (200 words max response)

LD002 MILITARY NUTRITION

Location: Scottsdale, Tasmania

Overview:

As a member of DST Group's Land Division, you would contribute to Defence's food and nutrition science program. Your duties would include contributing to research and analysis for both fresh and ration pack feeding with a particular emphasis on mission adaptive nutrition aimed at optimizing cognitive and physical performance of soldiers for a wide range of operations. This position also supports the Australian Army's modernisation efforts, both mid-term (3-5 years) and long-term horizons, with a particular focus on achieving a cognitive edge and improving resilience in challenging operations.

Additionally, you would be required to provide S&T advice on military nutrition across the broader Australian Defence Force and support nutritional aspects of the food science and technology program.

Academic Requirement:	Other Role Specific Requirements:
<p>A minimum of an Honours degree in one of the following areas:</p> <ul style="list-style-type: none">• Dietetics• Nutrition (human)	<p>Demonstrated ability and expertise related to the following:</p> <ul style="list-style-type: none">• Undertake research and analysis in military nutrition and provide support to the food science and technology work program.• Advising on dietary requirements for ADF personnel.• Writing and reviewing of food specifications and standards.• Use of Food Works (or similar software) to output nutrient analyses of recipes and menus; interpretation of the outputs in terms of nutritional adequacy and suitability.• Analysis of Electronic Catering Management systems, their introduction into service and application to military feeding.• Contributing to the design and evaluation of prototype pre-packaged meals (e.g. combat ration packs).• Support field trials of both fresh feeding and pre-packaged ration systems.• Provision of advice on food and nutrition legislative requirements and guidance.• Ability to communicate effectively both within and outside Defence.

Notes:

Appointees will be initially engaged on a **Baseline** security clearance with an upgrade to a **Negative Vetting Level 1** required upon commencement.

Written Application Specific Question: Provide your thoughts on the challenges of nutrition for enhanced physical and cognitive performance in a military environment. (200 words max response)

MD001 STEALTH MATERIALS

Location: Fishermans Bend, Victoria

Overview:

As member of DSTO's Maritime Division, you will contribute to developing a stealth materials program which will reduce susceptibility of maritime platforms and thereby increase survivability. This position will support the Australian Navy's new acquisitions, and the through life capability of existing naval platforms. The work programs will be guided by, the following considerations:

- Reducing platform signatures;
- Maximising platform survivability;
- Achieving best practice for naval platform signature management;
- Engagement with international partners on the development of stealth materials

This position will contribute to the signature management programs in both acoustic and non-acoustic signatures.

Academic Requirement: A PhD and relevant experience in one of the following areas: <ul style="list-style-type: none">• Materials Science• Rubber chemistry• Materials Engineering	Other Role Specific Requirements: Demonstrated experience with any or all of the following: <ul style="list-style-type: none">• Formulation and production of elastomeric materials;• Use of computational modelling to predict material properties and optimise elastomeric material formulations;• Development of new materials with tailored properties;• Accelerated life testing of elastomeric materials and the prediction of future material properties from test data;• Bonding of elastomeric materials.
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Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to **Negative Vetting 1 /Secret** required upon commencement.

Position Specific Written Application question:

Naval ships and submarines are treated with various materials in order to disguise them or to change their signature to defeat a sensor such as sonar or radar. What are the important differences in the chemical and physical characteristics of an elastomeric material used on a submarine compared to those for a ship. (200 words response max)

MD002 MARITIME PLATFORM SUSCEPTIBILITY

Location: Edinburgh, South Australia

Overview:

As a Maritime Division member, you will contribute to a new program aimed at analysing susceptibilities of submarines and naval ships from being detected, identified, localised, and tracked by threat systems. Reducing or offsetting these susceptibilities constrains the ability of an adversary to attack our operational vessels, systems, or people. Susceptibility analysis is therefore a step in developing options to enhance both survivability and mission effectiveness of Navy in a high threat environment.

You will be a member of a small team that will draw together a range of expertise and experts as required to conduct susceptibility analysis. The work involves building overall understanding of implications of numerous factors in a range of technical areas, including;

- The manner in which ships, submarines, and their systems disturb their operating environment (platform signatures);
- Propagation of these and other naturally-occurring or man-made effects (environment);
- Measurement of properties of the total disturbance (sensing);
- Discrimination of the measured disturbance due to the ship or submarine from other disturbances (detection);
- Techniques by which the ship or submarine may be identified and located to an appropriate level of confidence over a period of time (tracking).

Susceptibility analysis includes assessing the suitability and limitations of methods or models used, and describing relationships between input data, results, and conclusions. Your responsibilities will include reporting results of analysis to experts and non-experts. The work provides opportunities to broaden your technical knowledge and build your professional network. There is also flexibility to tailor this role so you may develop deeper expertise in a relevant area.

Academic Requirement:

An Honours Qualification in any of the following areas:

- physics
- electronic engineering
- computer science
- mathematics

Other Role Specific Requirements:

Willingness and aptitude to broaden technically, beyond the scope of your original studies and training, is essential.

Willingness to work in a diverse team environment, and undergo training for this, is essential.

Knowledge or experience in one of the range of contributing technical areas will provide some advantage.

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **SECRET (NV1)** required upon commencement.

Position Specific Written Application question:

This is a hypothetical Scenario

Navy seeks to acquire an unmanned underwater vehicle for covert applications. As a vehicle disturbs its physical environment, it produces observable effects by which it may be detected. You are tasked to give advice about acceptable levels of disturbance. What factors do you think are important in answering this request? Is there a particular scientific or engineering method or technique you might recommend be employed based on your background? Would you recommend a different method or technique if the advice was needed in a short timeframe? (200 words max response)

MD003 REAL-TIME SONAR SYSTEMS

Location: Stirling, WA (preference) or Edinburgh, SA

Overview:

As a member of DST Group's Maritime Division, you will contribute to a program developing prototype sonar processing and graphical user interface applications for Royal Australian Navy (RAN) submarines and/or ships. These prototypes include new and novel ideas developed by DST Group, Australian industry and academia. The prototype program has a very important role in the continuous improvement of the RAN's current and future sonar capability.

You will be a member of small team adapting and extending commercial computing technologies to enable the rapid development, installation and evaluation of prototype sonar processing and user interface enhancements in land based sites and at sea on RAN submarines and/or ships. The role also includes the There is flexibility to tailor this role so you may develop deeper expertise in a particular area.

Academic Requirement: An Honours degree in one or more of: <ul style="list-style-type: none">• computer science• electrical/ electronic engineering• physics	Other Role Specific Requirements: Willingness and aptitude to broaden technically, beyond the scope of your original studies and training, is essential. A high level of initiative and ability to work in a multi-discipline team environment. Experience in a range of software development lifecycle roles and development of time-critical applications would be an advantage.
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Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Negative Vetting Level 1 (NV1) Clearance** required upon commencement.

Position Specific Written Application question:

The role requires an ability to take existing knowledge from underwater acoustics research and use this understanding to develop real time hardware and software that exploits this knowledge. Please provide an example of how you have developed an understanding of an area of science and translated this knowledge into a time-critical application. (200 words response max)

NSID001 MICROWAVE RADAR ANALYSIS / RESEARCH

Location: Edinburgh, South Australia

Overview:

As a member of DST Group's National Security and Intelligence, Surveillance and Reconnaissance Division (NSID), you will contribute to the roles of the Surveillance and Reconnaissance Systems (SRS) Branch in conducting research and providing advice to the ADF on the characteristics and performance of microwave radar systems. SRS Branch is the primary knowledge repository for microwave radar systems for the Australian Defence Community and works closely with the Australian electronic warfare capabilities to provide a robust Australian RF sensing and defence capability.

The SRS Branch maintains core expertise in:

- Microwave radar technologies and engineering
- Radar signal processing for detection, identification and electronic protection
- Advanced Electronic attack
- Radar system performance prediction and characterisation
- Radar signature prediction, measurement and the development of treatment plans

This position will support either of the radar technology or radar signal processing core areas, as there is flexibility to tailor this role to the skillset of the successful applicant.

Academic Requirement:	Other Role Specific Requirements:
<p>An Honours/ PhD degree in one of the following areas:</p> <ul style="list-style-type: none">• Physics• Electrical/ Electronic Engineering• Computer Science• Mathematics	<p>Demonstrated experience with any or all of the following:</p> <ul style="list-style-type: none">• Understanding of modern electronic systems and technologies, and their applications;• Signal and array processing;• Computer simulation, modelling, or analysis of electronic systems; and/or• Development and use of high level software tools to aid in data analysis.

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **NEGATIVE VETTING 1 (NV1) Security Clearance** required upon commencement.

Position Specific Written Application Question:

What are your specific interests or experiences with electronic systems? (200 words max)

NSID002 ISR INTEGRATION

Location: Edinburgh, South Australia

Overview:

As member of DSTG's National Security, Intelligence, Surveillance and Reconnaissance Division, you will be part of a team responsible for the development of an exemplar Defence Intelligence, Surveillance and Reconnaissance Integration program. This will be used to demonstrate advanced concepts to the Australian Defence Force. Additionally, it will inform the Defence acquisition programs which are responsible to acquire the operational capability.

The exemplar will be taken on Defence trials where the advanced concepts will be further developed and demonstrated to the Australian Defence Force.

Academic Requirement:

An Honours Degree in one of the following areas:

- Computer engineering
- Computer Science
- Electrical / Electronic engineering

Other Role Specific Requirements:

Demonstrated experience with any or all of the following:

- Java software development, including service and user interface frameworks;
- Use of modern software development tools covering issue tracking, automated build & test, coverage & management of source code.
- Working in a team environment;
- Documentation of designs and implementations;
- Establishment of hardware and infrastructure to host information systems;

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **SECRET** Security Clearance required upon commencement.

Position Specific Written Application Question:

This position will require software development as part of a team to develop an information integration system. Can you please outline why this appeals to you and what challenges you might expect developing software as part of a team? (200 words max)

NSID003 ANALYTICAL SCIENCE

Location: Edinburgh, SA

Overview:

As member of DST Group's National Security and Intelligence, Surveillance and Reconnaissance Division, you will contribute to identifying future analytic processes for social domains of interest within a technologically mediated context. This position will work closely with multi-disciplinary teams to support Australia's National Security research programs, with mid-term (3-5 years) and long-term horizons, guided by the following considerations:

- Maximising the situational awareness of analysts;
- Understanding social context in 'Big Data';
- Achieving best practice for the analysis of the human domain; and
- Developing a science of analysis.

There is flexibility to tailor this role to the skillset of the successful applicant.

Academic Requirement:

A PhD in one of the following areas as well as formal qualifications in one or more of the other listed areas (or similar):

- Sociology/Anthropology
- Psychology
- Mathematics/Statistics
- Artificial Intelligence
- Natural Language Processing

Other Role Specific Requirements:

Demonstrated experience with any or all of the following:

- Working within a multi-disciplinary team whose main focus is the development of social systems modelling techniques and analytical tools;
- Experience in knowledge representation and reasoning with the ability to analyse and formalise complex and abstract concepts;
- Sound background in social science for the development of tools that support the analysis of socio-cultural factors;
- Development of theory and methods for network-oriented approaches to the analysis of social data; and/or
- Broad computer science skills enabling the coding, querying and analysis of social context

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Top Secret PV** required upon commencement.

Position Specific Written Application Question:

Describe your experience with human and social modelling, and the technologies you have employed in the analysis and coding. (200 words max)

SES001 ELECTRONIC ENGINEER

Location: Edinburgh, SA

Overview:

Under broad supervision, the Graduate Electronic Engineer will provide professional and technical support to the Electronic Design & Engineering (EDE) section of Scientific and Engineering Services (SES). The core engineering activities will be electronic hardware and embedded software design and development using computer aided design and engineering tools (CAD/CAE) operating within a team based design environment

The occupant of this position will be required to:

- Design, development and implementation of electronic hardware sub-systems utilising hardware description languages, synthesis, modelling and simulation with a computer aided design & engineering (CAD/CAE) framework.
- Design and development of hosted and embedded software sub-systems within a variety of computing environments.
- Undertake project management involving design, development, review, manufacture and implementation activities involving a team of professional and technical personnel.
- Liaise on a professional level with ADO, DST GROUP and external industry customers.
- Prepare, implement, review and apply quality process and section instructions within an ISO 9001 accredited quality system.

Academic Requirement:

A bachelor degree in one of the following areas:

- Engineering
- Computer Science

Other Role Specific Requirements:

Demonstrated experience with any or all of the following:

- Integrated software development environments.
- Hardware Description Language based logic development targeting programmable logic implementations.
- Electronic computer aided hardware design environments targeting printed circuit board implementations.

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **NV2** required upon commencement.

Written Application Position Specific Question:

Describe the technical details and the process you followed in developing a piece of hardware, HDL firmware or software that you particularly designed in your academic or work experience? (200 words max response)