# Position Details

## Research Projects – CSOF4

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| The following information is for applicants |
| Advertised Job Title | Marine Autonomy Engineer |
| Job Reference | 96170 |
| Tenure | Specified Term of 3 years Full-time (preferred)  |
| Salary Range | AU$93,267 – AU$105,517 per annum (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Hobart, TAS |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Project Leader/Team Leader, Systems Engineering |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Andrew Filisetti via email Andrew.Filisetti@csiro.au or phone +61 3 6232 5116 |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

CSIROs Future Science Platforms (FSPs) represent an investment in science that underpins innovation and has the potential to help reinvent and create new industries for Australia. The [Autonomous Sensors Future Science Platform](https://research.csiro.au/autonomous-sensors-fsp/) (AS FSP) will accelerate the generation of new tools to enable growth of digital decision making within domains; combining fundamental sensor research with autonomous engineering solutions to provide new advanced sensing and platform technologies for the environmental monitoring, health monitoring, mining, agriculture, and manufacturing domains.

This position sits within the Engineering & Technology (E&T) program of CSIRO National Collections and Marine Infrastructure (NCMI), centred on Autonomous Systems for Marine Observations. Performing sustained marine observations presents a significant challenge due to the harsh and remote nature of the environment. E&T delivers bespoke systems and equipment to further science within the field and this role aims to strengthen the use of autonomous marine systems within the program. This will allow CSIRO to remain at the forefront of effective and efficient surveying, exploration, management, and intervention of the marine environment, important for understanding and preventing threats posed to Australia’s ecology and biodiversity.

This role will work as part of a team of highly skilled multidisciplinary engineers and technicians to progress autonomous marine observations into the future. This engineer will play a leading role in developing novel methods in the command and control of autonomous platforms in the marine environment, as well as have the opportunity to observe and evaluate performance in the field.

### Duties and Key Result Areas

* Assist in the development of adaptive vehicle guidance algorithms to enable higher heuristic mission planning for single and multi-fleet autonomous platforms. This may include dynamic path planning based on sensor or model inputs, in-situ path plan optimisation and control via model inputs.
* Understand and manage complex systems, such that suitable system requirements, design, integration, testing and validation can take place on novel scientific sensors for marine observations.
* Integrate various sensors into a vehicle platform(s) for navigation and environmental monitoring, both underwater and surface domains.
* Develop (or assist in the development of) suitable testbeds for evaluating solutions; both software and hardware based.
* Undertake a wide variety of tasks or tasks with a high degree of specialisation.
* Show initiative to seek new approaches to meet experimental or technological needs when encountering new problems where methods are not defined.
* Participate in the identification and definition of research and/or technological problems with colleagues.
* Address problems promptly and in a constructive manner.
* Participate in planning projects and accept responsibility for scheduling and completion of major parts of the project, including evaluation of options, experimental design, data collection and analysis, user and customer research, user experience and/or software design, implementation, and delivery.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary, regionally dispersed research team to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy and diversity initiatives.
* Other duties as directed.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. Minimum qualification of a Master’s degree in a field such as mechatronics, robotics, computer science or software engineering, and/or have equivalent demonstrated experience in a related field.
2. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
3. Experience in programming languages like Python, C/C++ for developing control algorithms and system integration.
4. **The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**

## **Desirable**

1. Knowledge of the maritime field is an advantage, particularly related to vehicle control and/or simulation, such as algorithms for autonomous decision-making, path planning, SLAM, and AI/ML techniques for perception, artificial intelligence, robotics, marine autonomous systems, advanced control theory.
2. Experience in CAD software for designing mechanical components and systems for ocean deployment, including hulls and propulsion systems.
3. Able to design and troubleshoot electrical and electronic systems, including sensors, actuators, and communication interfaces.
4. Experience with ROS and other robotics related software.
5. Familiar with marine engineering principles, such as hydrodynamics, buoyancy, marine propulsion, and robotic principles, such as kinematics and dynamics, for the design of autonomous marine vehicles.
6. Previous publications in peer reviewed journals and/or authorship of scientific papers, conference proceedings, reports, grant applications or patents.

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others’ reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* The successful applicant may be required to undergo a medical assessment IF they wish to participate in fieldwork activities (please note this is not a pre-onboarding requirement for the role in general).
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test) – <https://ielts.com.au/>

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/), [Autonomous Sensors Future Science Platform](https://research.csiro.au/autonomous-sensors-fsp/), or [CSIRO National Collections and Marine Infrastructure (NCMI)](https://www.csiro.au/en/about/people/business-units/NCMI) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted