**Postdoctoral Fellowship – CSOF4**

Role summary for potential applicants

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| Advertised Job Title**:** | FSP Postdoctoral Fellow - Designing Robot Morphologies |
| Reference Number**:** | 43891 |
| Classification**:** | CSOF4 |
| Salary Range: | AU $78,479 to AU $88,787 plus up to 15.4% superannuation |
| Location**:** | Pullenvale, QLD |
| Tenure: | Specified Term of 3 years |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | * All Candidates
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| Functional Area**:** | Research Scientist / Engineer - Postdoc |
| % Client Focus - Internal: | 100% |
| % Client Focus - External: | 0% |
| Reports to the: | Group Leader |
| Number of Direct Reports: | 2 |

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| **Role Overview:** |
| **Postdoctoral Fellowships** at CSIRO provide opportunities to scientists and engineers, who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships will help launch their careers, provide experience that will enhance their career prospects, and facilitate the recruitment and development of potential leaders for CSIRO. Postdoctoral Fellows **are appointed for up to three years** and will work closely with a leading Research Scientist or Engineer in their respective field. They carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes. They present the findings in appropriate publications and at conferences.*Future Science Platforms (FSPs) are a major new CSIRO initiative. FSPs are multi-year investments in frontier science that will reinvent and create new industries for Australia. Active Integrated Matter (AIM) focuses on creating a new technology platform combining materials, robotics and autonomous science with processing and sensing technologies, AIM will lead ground-breaking advances at the interface of big data, advanced autonomous systems and materials science. The successful applicant will join a diverse cohort of experienced and early-career researchers and engineers who will combine their individual disciplinary contributions into mission-focussed R&D.****As part of AIM, you will focus on a new capability: to create task- and environmentally-adapted robots. You will develop models of novel materials and parts, allowing them to be considered in the robot design process. This will allow the FSP to apply its considerable Materials Science expertise to the promising field of robot design. Your role in developing this capability will bridge the gap between robotics and materials, and is therefore fundamental to the platform.******The Postdoctoral Fellow will work in collaboration with a roboticist, two machine learning experts, and a materials scientist to carry out this project. The proposed methodology requires advancements in the modelling of advanced materials, to make them suitable for robotics applications. As this capability is projected to be a key research priority area for AIM, the Postdoctoral Fellow will also gain experience interacting closely with other CSIRO researchers with different backgrounds and expertise.******The ideal candidate will possess a PhD in machine learning, robotics, materials science, or mathematics, and be highly experienced in modelling and simulation. The candidate would also be highly proficient in one or more programming languages such as, Python, C/C++, or equivalent. Experience in evolutionary methods would be highly advantageous.*** |

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| **Duties and Key Result Areas:** |
| * Under the direction of the supervisory team, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
* Work with CSIRO scientists within the project team and across the AIM FSP to develop robot-generating methodologies. This will involve:
* Development of suitable robot body representations that are tractable and easy to modify, yet can be used to create complex body types
	+ Creating high-fidelity simulations and models that can be used for performance analysis of the robots
	+ Working with our Materials Scientists, create some of these robots in reality
* Produce high quality scientific and/or engineering papers suitable for publication in quality journals, for client reports and granting of patents.
* Prepare appropriate conference papers and present those at conferences as agreed with your supervisor.
* Undertake regular reviews of relevant literature and patents
* Contribute to the development of innovative concepts and ideas for further research.
* Make a contribution to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
* Work collaboratively with colleagues within your team, the business unit and across CSIRO.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Undertake an appropriate training and development program developed by CSIRO.
* Other duties as directed.

***CSIRO’s postdoctoral training program***is developed between the Postdoctoral Fellow and a CSIRO scientist. The program will focus on enhancing the Fellows’ capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

<http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships> |

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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed****Pre-Requisites:***1. **Education/Qualifications:** A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as *Robotics, Evolutionary Computing, (Embodied) Artificial Intelligence, Mechatronics, Software Engineering*

***Please note:*** *To be eligible for this role you must have* ***no more than 3 years*** *of relevant postdoctoral experience.*1. **Communication:** High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including at national and international conferences.
2. **Publications:** A record of publications in quality, peer reviewed journals.
3. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

***Essential Criteria:***1. Strong programming skills (C++/Python preferred)
2. Experience with robotics
3. Experience with simulation and/or modelling
4. The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.
5. A record of science innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

**Desirable Criteria:**1. Experience with robotics hardware (electronics/mechatronics)
2. Practical use of evolutionary computing

**CSIRO Values:**As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to Excellent science, Inclusion, trust & respect, Health, safety & environment and Deliver on commitments.  In your application and at interview you will need to demonstrate alignment with these behaviours.To be appointed as a Postdoctoral Fellow within CSIRO, candidates are required to have **submitted** their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($78,479).Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.***Other special requirements:****Appointment to this role may be subject to conditions including security/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearance processes; which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).-* [*http://www.ielts.org/default.aspx*](http://www.ielts.org/default.aspx)***CSIRO Values:***As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to Excellent science, Inclusion, trust & respect, Health, safety & environment and Deliver on commitments.  In your application and at interview you will need to demonstrate alignment with these behaviours.***Data61 Values:*****Great Impact**: We focus our valuable resources on areas where we can lead globally and have large impact for Australia, to aid our future prosperity and independence.  **Mastery**: We are fearless, curious and we improve every day. We strive to excel in research, technology and business, and to work with the best in the world.  **Co-Creation of Value**: Everything we do involves co-creation with our network: team, customers and partners. Generously empowering their success is central to our success.  **Ownership of Results**: We jointly hold ourselves accountable for our actions. We do this via trust and commitment. **People and their Differences**: We embrace the creativity that comes from the diversity of our people. **Agility and Flexibility**: We view the changing world as an opportunity. This requires agility and flexibility in everything we do; everything changes, except our constant desire to adapt. **Tell it Straight, with Respect:**We say what we mean, mean what we say, and do not mislead, obfuscate or spin. We're direct and always respectful. |

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| **Other Information:** |
| **How to Apply**Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). You may be asked to provide additional information (online) relevant to the selection criteria. If so, then responding will enhance your application so please take the time to provide relevant succinct answers. Applicants who do not provide the information when requested may not be considered.If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: csiro-careers@csiro.au. **Referees**: If you do not already have the names and contact details of two previous supervisors or academic/ professional referees included in your resume/CV please add these before uploading your CV.**Contact:** If after reading the selection documentation you require further information please contact: Dr. David Howardvia email: david.howard@csiro.au or phone: +61 7 3327 4714 **Please do not email your application directly to Dr. Howard. Applications received via this method will not be considered.****About CSIRO**Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation. Find out more! [www.csiro.au](http://www.csiro.au). **CSIRO Data61** In today’s data-focused world, there’s no doubt that numbers count. [**Data61**](http://www.data61.csiro.au/) are the largest data innovation group in Australia, a connector that brings together technology innovators, businesses and universities to transform Australian industry and to help solve our greatest challenges. A CSIRO business, we are creating our data-driven future.**Our commitment to you**We work flexibly at CSIRO, offering a range of options for how, when and where you work. Talk to us about how this role could be flexible for you. We emphasise an individual’s growth and development which is supported by interacting and learning from world leading scientists and engineers, who provide the opportunity to challenge, transform and innovate new ideas. CSIRO’s Data61 is committed to sourcing the brightest and best talent to become part of the Data61 family, which contributes to creating Australia’s data driven future. |