# Position Description

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

The following information is for applicants

|  |  |
| --- | --- |
| Advertised job title**:** | CERC Postdoctoral Fellowship in Semantic 3D Vision |
| Job reference: | 61272 |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | [ ]  Australian Citizens Only[ ]  Australian/New Zealand Citizens and Australian Permanent Residents Only* [x]  All Candidates
 |
| Percentage of client focus - internal: | 50% |
| Percentage of client focus - external: | 50% |
| Reports to the: | Team Leader |
| Number of direct reports: | 0 |
| How to apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon  |
| Contact details to discuss this position: | Nick Barnes: Nick.Barnes@data61.csiro.auPlease do not email your application directly to Nick Barnes. Applications received via this method will not be considered by the selection panel  |
| If you have difficulty applying please contact: | Call 1300 984 220 or email csiro.online@csiro.au between 8.30 am and 5 pm Australian east coast time. |

## Role Overview:

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Postdoctoral Fellows **are appointed for three years or part time equivalent.**

We are looking for a CERC Postdoctoral fellow to conduct research in new deep learning techniques for computer vision. In particular, to solve problems of fine-grained classification, scene understanding and segmentation from images and 3D data.

This is a great opportunity for the successful candidate to join the high performing 3D Computer Vision

Team as part of Imaging and Computer Vision at Data61. The selected candidate will achieve impact by developing novel algorithms and architectures in computer vision. We consider problems of segmentation, scene understanding and 3D vision including using deep Convolutional Neural Networks. The successful candidate will conduct fundamental research, and contribute to the team’s industry projects to some key challenges of Australian society, including Bionic Vision and autonomous vehicles.

## Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, CERC Postdoctoral Fellows:

* Under the direction of senior research scientists, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
* Develop innovative concepts, theories, tools and techniques related to the analysis of video and still images.
* Harness the growing volume of publicly available data sources, as well as work on establishing proprietary datasets in collaboration with our partners;
* Produce high quality scientific and technical outputs including journal articles, conference papers and presentations, patents and technical reports;
* Represent CSIRO at leading national and international conferences and forums;
* 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.

**The CERC Postdoctoral Fellow learning and development program**is developed between the CERC Postdoctoral Fellow and their CSIRO supervisor. 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>

## CSIRO Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **Independence: Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).**
6. **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.

## Selection Criteria:

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

1. A doctorate (or will shortly satisfy the requirements of a PhD) in Computer Vision or a related discipline area.

***Please note:*** *To be eligible for this role you must have* ***no more than 3 years (or part time equivalent)*** *of postdoctoral research experience.*

1. Ability to investigate issues of complex and ill-defined problems and develop appropriate responses by adapting/creating and testing alternative solutions. Demonstrated experience in Deep Learning using Convolutional Neural Networks.
2. Demonstrable evidence of well-developed written and verbal communication skills, for example, publications in academic environments such as scientific journals/conference proceedings, experience presenting and demonstrating at conferences, industry exhibitions, internal training seminars
3. Evidence of advanced programming skills and software design in languages relevant for computer vision research (e.g. C/C++, Python, MATLAB)
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. A strong mathematical/analytical background, in areas related to computer vision
2. Demonstrated GPU/Parallel Computing experience.
3. Experience in 3D Computer Vision.
4. Interest in entrepreneurship and bringing technology to market

To be appointed as a CERC 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 $82,450Upon 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.

## Special Requirements:

N/A

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more! <https://www.csiro.au/en/careers/postdoctoral-fellowships>

## About CSIRO:

At CSIRO we solve the greatest challenges through innovative science and technology. See more [online](http://www.csiro.au/)!

Find out more about the CSIRO [Data61](https://www.data61.csiro.au/)