# POSITION DESCRIPTIONResearch Scientist – CSOF6

Role summary for potential applicants

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| Advertised Job Title**:** | Computer Vision and Image Understanding Senior Research Scientist  |
| Reference Number**:** | 58471 |
| Classification**:** | CSOF6 |
| Salary Range: | AU $ 111,663 to $130,848 plus up to 15.4% superannuation |
| Location**:** | Black Mountain, ACT |
| Tenure: | Indefinite |
| 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
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| Functional Area**:** | Research Scientist / Engineer |
| % Client Focus - Internal: | 70% |
| % Client Focus - External: | 30% |
| Reports to the: | Team Leader  |
| Number of Direct Reports: | 0 |

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| **Role Overview:** |
| The role of Senior Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO's strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.We are seeking to appoint a highly motivated Senior Research Scientist to undertake computer vision research. The successful candidate will contribute to multiple projects undertaken by the CSIRO and in collaboration with other academic and commercial partners. These projects will include the development and deployment of novel algorithms and tools in 3D scene and objects modelling, as well as semantic scene understanding. The successful candidate will join the high-performing Imaging and Computer vision Group at the CSIRO’s Data61, joining 600 other data science scientists building innovative solutions for Australia. To be successful in this role you will be enthusiastic about making a hands-on contribution to solving the research challenges found in multiple projects involving bionic vision, autonomous vehicle, or object detection using advanced machine learning methodology, especially deep learning. CSIRO staff are professional scientists with no teaching duty. We strive on innovation and work closely with all the Universities, supervising and hosting many graduate and post-graduate students. CSIRO offers unique opportunity to mesh within the Australian innovation ecosystem and staff are exposed to deep technology start-ups and innovative commercial companies. We encourage and support entrepreneurship. This is a great opportunity for the successful candidate to work with other innovative researchers in a leading government organisation which is engaged in world class scientific research projects, and offers excellent career development and professional support. CSIRO is strongly committed to Diversity and offers Flexible Working Arrangements. The successful candidate will have a unique opportunity to translate their research into practice with impact on both Australian and international programmes.More senior candidates are encouraged to apply as scientific leadership opportunities exist.  |

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| **Duties and Key Result Areas:** |
| * 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;
* Carry out innovative, impactful research of strategic importance to CSIRO;
* 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;
* Contribute to the development of innovative concepts and ideas for further research.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed****Pre-Requisites:**** **Education/Qualifications:** A doctorate in Computer Vision or a related discipline area, plus at least 3 years of relevant post doctorate research experience.
* **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.**
* **Funding: demonstrated ability to write proposals such as competitive grants and attract commercial interest.**
* **Publications: A record of publications in leading, peer reviewed journals and conferences relevant to computer vision** (please list publication impact in your CV, e.g. number of citations, journal impact factor, conference size, etc.).
* **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

***Essential Criteria:***1. Demonstrated ability to investigate issues of complex and ill-defined problems and develop appropriate responses by adapting/creating and testing alternative solutions.
2. Demonstrated experience in 3D computer vision such as reconstruction, Visual Localization and Mapping, RGB-D, semantic vision with reasoning about the 3D world, or understanding visual scenes over time such as optical flow.
3. 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.
4. Proven ability to work independently and as part of a team to prototype research ideas and develop them into demonstration and/or proof of concept systems. In addition, a demonstrated ability to interact with external/internal collaborators and stakeholders to solve their problems by creating and adapting research methods;
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. **Interest and experience in entrepreneurship and bringing technology to market**
4. **Demonstrated experience using deep Convolutional Neural Networks in solving computer vision problems.**
5. Evidence of advanced programming skills and software design in languages relevant for computer vision research (e.g. C/C++, Python, MATLAB), and frameworks for deep learning (e.g., Tensor flow, PyTorch).

**As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to**:* Excellent science
* Inclusion, trust & respect
* Health, safety & environment
* Delivery 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.***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> |

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| **Other Information:** |
| **How to Apply**Please apply for this position online at <https://jobs.csiro.au/> and enter requisition number **58471**. Please load your CV (Maximum 2MB). You may also be required to respond to some screening questions.  If you experience difficulties applying online call 1300 984 220 for assistance. Outside Australian business hours please email: csiro-careers@csiro.au. **Referees**: Please provide contact details of two previous supervisor or academic/professional referees in your resume/CV. We will ask your permission before making contact. **Contact:** If after reading the position details above you require more information please contact:Dr Nick Barnes Nick.Barnes@data61.csiro.au or Dr Lars Petersson Lars.Petersson@data61.csiro.au Please do not email your application directly to Dr Barnes or Dr Petersson. Applications received via this method may not be considered by the selection panel.**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). 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. Find out more! [CSIRO Balance](https://www.csiro.au/en/Careers/A-great-place-to-work/Work-life-balance) **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. |