# backgroundData 61 and CSIRO logoResearch Projects – CSOF4 or CSOF5

Role summary for potential applicants

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| Advertised Job Title**:** | Research Software Engineer / Experimental Scientist |
| Reference Number**:** | 27221 |
| Classification**:** | CSOF4 (CSOF 5 will be considered if skills and experience are more suited to the higher level) |
| Salary Range: | AU $78,479 to AU $88,787 plus up to 15.4% superannuation  Candidates will be considered at CSOF 5 (92k - $100k plus super) |
| Location**:** | Canberra |
| Tenure: | Indefinite/Ongoing |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | All Candidates |
| Functional Area**:** | Research Projects |
| Number of Direct Reports: | 0 |
| Reports to the: | Team Leader – Quantitative Imaging |

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| **Role Overview:** |
| **We are seeking a highly motivated Research Software Engineer / Experimental Scientist with a passion for developing novel Interactive Computer Graphics Applications.**  The successful applicant will contribute to projects in a diverse range of application areas, making use of the Advanced Augmented Reality (AR) and Virtual Reality (VR) facilities in the Data61 Immersive Environments Lab in Canberra, and collaborating widely within and outside of CSIRO. Recent team projects have included systems that combine AR, VR, and/or Web3D technologies for the remote guidance of maintenance workers, interactive annotation of 3D scans, and novel urban visualisation for stakeholder engagement. Going forward, we aim to expand our platforms for web based delivery of, and interaction with, 3D data.  The role of Research Projects staff in CSIRO is to collaborate in scientific and innovation activities with other research staff and students usually by assisting with detailed planning of, undertaking or assisting with experience design and software development. This position also includes the opportunity and encouragement to publish research results in international conferences and journals. |

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| **Duties and Key Result Areas:** |
| * Software engineering and programming for rapid prototyping of Interactive Computer Graphics applications including VR, AR and Web3D. * Craft technology demonstrations on top of software platforms that enable people to experience and use new application concepts. * Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation. * Work as part of a multi-disciplinary, often regionally dispersed research team, to carry out tasks under limited direction. * Work collaboratively with colleagues within your team, the business unit and across CSIRO, to reach objectives. * Foster open communication, provide coaching and on-the-job training to both support and research colleagues, as required. * Adapt and/or develop original experimental methods/equipment/software/concepts/ ideas in support of existing and further research. * Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals. * Other duties as directed. |

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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed.*  *Please carefully address each of the itemised Essential Criteria when applying.*  *We expect to appoint an applicant that meets a number of the Desirable Criteria and compact responses to the points that are relevant should be included in the application.*  ***Pre-Requisites:***   1. **Education/Qualifications:** First Class Honours, Masters, PhD Degree &/or equivalent experience in Computer Science, Engineering or a directly related field. 2. **Communication:** Excellent communication skills, both written and oral, including the ability to anticipate the interests and knowledge level of an audience and present information and feedback accordingly**.** 3. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment. 4. **Adaptability:** The ability to effectively manage a number of competing priorities simultaneously, and carry out non-routine tasks under limited direction. 5. **Problem Solving:** Proven ability to investigate underlying issues of complex and ill-defined problems and develop appropriate responses by adapting/creating and testing alternative solutions**.**   ***Essential Criteria:***   1. Demonstrated experience with real time 3D graphics and/or computer vision. 2. Familiarity with Virtual Reality, Augmented Reality and/or Web3D. 3. Demonstrated experience building interactive software with one or more programming languages such as: Javascript, C++, C#, Python, Matlab. 4. The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out tasks autonomously. 5. Familiarity with modern Computer Graphics Engines such as Unity or Unreal and/or familiarity with Graphics Libraries such as OpenGL, Vulkan, or DirectX. 6. Demonstrated ability & willingness to contribute novel ideas and approaches in support of scientific investigations.   **Desirable Criteria:**   1. Experience with Web and/or distributed systems as well as an appreciation of open web standards such as HTML 5, WebGL, WebRTC, X3D, WebVR, etc. 2. Familiarity with modern front-end web frameworks such as Angular, React, Ember etc. 3. Familiarity with server-side web frameworks such as Node.js/Express, Ruby on Rails, Django etc. 4. Familiarity with Human Computer Interaction and/or Interaction Design concepts and methods 5. Familiarity with concepts of human visual perception and optics 6. Familiarity with 3D Modelling Packages 7. Familiarity with 3D Scanning and 3D Reconstruction technologies 8. Familiarity with Multimodal User interaction (Auditory, Haptics, etc.) 9. Experience implementing mobile applications 10. Experience implementing simulations on GPUs 11. Experience with statistical methods 12. Aptitude for 3D mathematical concepts, particularly linear algebra 13. Entrepreneurial and Innovative 14. Established and growing a relevant professional network 15. Hunger for professional development 16. Track record of Research Publications   **CSIRO:**  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.  In Data61, our leaders will be expected to demonstrate the following values:   * **Hierarchy**: Country, Company, Team, Individual * **Openness**: Open debate, collaboration, full commitment * **Learning**: Calculated risks, institutionalise learning, fast cadence * **Impact**: Tackle hard problems, create the future, focus on outcomes * **Stewardship**: Lead, make each function and co. stronger over time   ***Other special requirements:***  To be eligible for this position you must be willing and able to travel on occasion to conferences, meetings and other events. |
| **Other Information:** |
| **How to Apply**  Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). You will need to upload your cover letter and resume/CV and any academic transcripts as one document. Please provide sufficient relevant, specific and brief information in your letter to enable the selection panel to assess your suitability against each of the selection criteria.  Should your application proceed to the next step, you may be asked to provide additional information.  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](mailto: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.  Academic Transcripts: If you are a recent graduate, please ensure you provide an academic transcript.  **Contact:** If after reading the selection documentation you require further information please contact:  Matt Adcockvia email: Matt.Adcock@csiro.au or phone: +61 2 6216 7098.  Please do not email your application directly to Matt Adcock. 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.  Find out more: [www.data61.csiro.au](http://www.data61.csiro.au) |