Position Details

CSIRO Early Research Career (CERC) Postdoctoral Fellowship – CSOF4

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| The following information is for applicants |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in Human Digestion Modelling |
| Job Reference | 65852 |
| Tenure | Specified Term of 3 years Full-time |
| Salary Range | AU$83,687 to AU$94,679 pa + up to 15.4% superannuation |
| Location(s) | Clayton, VIC |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Natural Systems Modelling Group Leader |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Simon Harrison, Simon.Harrison@data61.csiro.au |
| 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. |

**Role Overview**

CSIRO Early Research Career (CERC) Postdoctoral Fellowshipsprovide 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.**

The postdoctoral fellow (PDF) will make a major contribution to development and validation of 3D physics-based computational models of gastro-intestinal digestion from mouth entry to the large intestine including food breakdown, transport, and gut bacteria interactions. These models couple dynamic chemical and multiphase mechanical processes and will be applied to both *in vivo* and *in vitro* conditions.

The PDF will join a strong team who develop and apply these models to research projects with commercial and academic impact. The work that the PDF will contribute to will have the potential to be world leading in the areas of digestion and microbiology simulation and as a result there will numerous opportunities for journal publications and conference presentations.

## Duties and Key Result Areas:

The PDF will:

* Design and perform research studies using 3D flow simulations of human digestion.
* Investigate new methods for simulating microbial growth and decay in the gastrointestinal tract on a meso to macro scale.
* Publish and present new scientific outcomes in journals and international conferences.

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

* + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
	+ Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research
	+ Utilise design thinking methodology to plan and prepare research proposals, and apply non-academic impact methodology to research projects
	+ Carry out research investigations requiring originality, creativity and innovation
	+ Record, manage, and analyse data/information using relevant domain data science techniques.
	+ Proactively undertake development to grow effective researcher capabilities to support career goals
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals
* Other duties as directed.

[**The CERC Postdoctoral Fellow learning and development program**](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships)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

## 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.

 **Selection Criteria**

**Essential:**

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

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as Computational modelling, Physics, Mechanical Engineering or Mathematics.

*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. Proven strong desire to learn new skills and demonstrated initiative.
2. Highly developed problem-solving ability with a demonstrated record in gaining insight into complex physical and/or industrial systems through the application of simulation software.
3. Demonstrated ability and desire to work in, and with, multi-disciplinary teams.
4. Strong organizational and project management skills, including a demonstrated ability to meet demanding deadlines and respond creatively and rapidly to new requirements.
5. **High level written and oral communication skills with the ability to effectively represent the research team internally and externally, including publishing in peer reviewed journals and/or authorship of scientific papers, reports, and presenting at national and/or international conferences.**
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations, preferably across diverse and inclusive teams.

**Desirable:**

1. Experience in detailed modelling of physical systems using either SPH or other CFD methods.
2. **Advanced scientific programming skills with expertise in C++ and/or F90.**
3. **Expertise and/or experience with biophysical/biomechanics/microbiological theory and applications.**
4. Design and execution and analysis of experiments with the purpose of gaining new understanding of a physical system.

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 *($83,687).* 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.

**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 Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* 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/

 **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.

## About CSIRO:

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

**About Data61:**

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