



Position Description

NAME:	Incumbent
JOB TITLE:	Bioinformatics Research Assistant
DEPARTMENT:	Computational Biology Group
DIVISION:	Personalised Medicine Head of Research Computing
REPORTS TO (TITLE):	Interim - Computational Biology Group Leader
LAST DATE REVIEWED:	5 th February, 2020

JOB SUMMARY

Paediatric cancer takes a devastating toll on patients, their families and the community, with 950 new patients diagnosed in Australia each year. Precision cancer medicine aims to improve outcomes in cancer patients by matching patients to the optimal treatment, based on molecular tumour profiling. Bioinformatics is critical to this; however, several significant challenges remain to bridge the gap from 'omic' data into improved outcomes. Molecular profiling of tumours plays a critical role in the diagnosis and prognosis of patient tumours and holds enormous research potential to further understand the biological processes underlying paediatric cancer.

The newly formed Computational Biology group at the Children's Cancer Institute develops novel computational approaches to improve outcomes in patients with childhood cancer. This primarily involves the analysis of whole genome, transcriptome and methylome data, from patient tumours and preclinical models. From this, we develop methods to understand the role of inherited and somatic variation in tumour initiation, progression, and to identify therapeutic vulnerabilities. Our research has a highly translational focus and is leading the genomic and bioinformatic analysis underlying the national Zero Childhood Cancer program, the Paediatric Centre for Precision Medicine and the ACRF Child Cancer Liquid Biopsy Centre. We are partners of the Australian Bioinformatics Commons, a new initiative to establish an Australian instance of the CAVATICA Paediatric Research platform.

The main roles of this Bioinformatics Research Assistant will be (1) to support the development of cloud-based genomic analysis apps and (2) to support the analysis and delivery of data relating to each patient recruited onto the studies mentioned above, and (3), to support large-scale genomic analysis. This will involve the design, development and testing of containerised genomic apps, customised analysis workflows to achieve research outcomes based on large-scale genomic analysis. We aim to use multiple clouds to maximise our in house hybrid cloud which is in development, and commercial clouds.

The successful applicant will be a strong programmer, with an eye for detail, a passion for technology, an understanding of containerised apps and workflows and experience using either the cloud or high-performance computing environments. Experience with genomic analysis would be of benefit, but not strictly necessary. They will work closely with other members of the Computational Biology group to support this infrastructure development and the research goals of the group.



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PRIMARY TASKS / RESPONSIBILITIES

In fulfilling the core strategic objectives of the group, the role will be engaged in the following duties and responsibilities:

- Support the development of cloud-based genomic applications to analyse cancer data
- Support the development of automated systems for application testing and deployment
- Support the development of containerised applications (e.g. docker, singularity)
- Support the establishment of frameworks to use various commercial clouds and their batch queueing systems.
- Potentially support the design and development of databases to store and query patient molecular data
- Potentially support the implementation of web-based research platforms for data presentation
- Benchmarking of novel and emerging methodologies to analyse patient molecular data
- Support the research and grant administrative activities of the Computational Biology group
- Other duties as assigned

Key Interactions:

- Internal: A/Prof Mark Cowley - Computational Biology Group Leader, Dr Marie Wong - Senior Bioinformatics Engineer, researchers and students within the Computational Biology Group, Precision Medicine Program and others as required
- External: Key external collaborators where research is or will be undertaken, members of the Australian Bioinformatics Commons.

MINIMUM REQUIREMENTS

Qualifications

- Master's in bioinformatics, software engineering, computer science, physics, or related degrees

Experience and requirements

- Strong expertise in at least one of these areas:
 - Bioinformatics
 - Software engineering
 - Computer science
 - Programming
- Expertise in at least two of bash, R, perl or python is essential
- Highly motivated, creative and empathetic is essential
- Experience working with a team is highly desired
- Expertise in at least one of genetics, genomics, next generation sequencing, cancer biology or molecular is desirable, but not essential
- Expertise in cloud-based and/or high-performance computing platforms and software containers is highly desirable, but not essential
- Expertise in whole genome sequencing and RNA sequencing data analysis is desirable, but not essential

KEY SKILLS

- Strong analytical, critical thinking, and problem-solving skills
- Creativity, flexibility and empathy
- Capacity to work under minimal supervision
- Strong project management skills
- Strong interpersonal skills and ability to work cooperatively, openly, and transparently



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EXPECTED OUTPUTS

- Produce local, and cloud-based genomic applications, which can be used to run robust, large-scale genomic analysis on the cloud.
- Support the research goals of the Computational Biology Group, including the publication of high impact methodological, and biological research papers

Children's Cancer Institute policies applicable

Code of Conduct/Ethics

- Whistle-blowing
- Use of Electronic Resources
- Workplace Health & Safety
- Appropriate Workplace Behaviour
- Privacy
- Any other policies not listed here but are available on the Children's Cancer Institute Intranet Policies pages

SERVICE STANDARDS AND GENERAL EXPECTATIONS

- Respond to phone calls and emails within 48 hours
- Read internal communications within 48 hours
- Maintain up to date personal information in the HRIS (ConnX - Self Service) at all times

OUR VALUES

A is for **Accountability** and **Integrity**

C is for **Camaraderie, teamwork** and **Sharing**

E is for **Excellence** and **Success**

S is for **Satisfaction. The result of living our values everyday**

COMPLIANCE AND CODE OF ETHICS AND CONDUCT

Staff members are responsible for ensuring that they are familiar with and comply with their conditions of employment as stated in their individual contract, all Children's Cancer Institute Policies and Procedures and relevant ethical and regulatory guidelines. Staff must be aware that breaches by individuals will not be tolerated or condoned and may be subject to the Disciplinary Action Policy.

Your knowledge and awareness of Children's Cancer Institute Policies and Procedures (including the Code of Ethics and Conduct), will be monitored from time to time to ensure that our compliance program is effective.

Part of compliance adherence involves the use of standardised forms, checklists, and other aids (as appropriate) to ensure that important compliance issues are not overlooked. All forms must be used in accordance with instructions and the procedures as outlined in the relevant policies and procedures to ensure that compliance to the laws and regulations occurs.



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WORK HEALTH & SAFETY

- Must adhere to all WHS policies and procedures including reporting incidents within 24 hours
- Take reasonable care for their own health and safety and the health and safety of other people who may be affected by their conduct in the workplace
- Actively participating in health and safety meeting, training and induction programs
- Complying with all safe work procedures and instructions
- Use equipment in compliance with relevant procedures, without wilful interference or misuse
- Ensure that any hazardous conditions, near misses and injuries are reported immediately to the supervisor and in the WHS reporting system (Myosh)
- Must not wilfully or recklessly interfere with or misuse anything provided in the interest of environment health and safety or welfare
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REPORTING STRUCTURE

Position reports direct to: *Computational Biology Group Leader*.

Departmental Structure: *See Organisation Chart*

Note: Reporting structure may change subject to management decisions and business requirements.