

Position Description

Position title	Machine Learning Data Scientist
Department / Division	Centre for Health Analytics/ Allied and Digital Health
Classification	Grade 7 Year 1 – Grade 7 Year 5 (AO71-AO75)
Position reports to	Data Innovation Lead, Centre for Health Analytics
No. of direct & indirect reports	Up to 2
Location	The Royal Children's Hospital, Flemington Road, Parkville
Risk category	Category C - works in a non-clinical setting, non-patient facing setting and only attends clinical areas infrequently

The Royal Children's Hospital
<p>The Royal Children's Hospital's (RCH) vision is <i>a world where all kids thrive</i>.</p> <p>RCH is located within the Melbourne Biomedical Precinct, with more than 45 world-class biomedical organisations and more than 50,000 of the brightest minds working together to make the Precinct number one in the Asia Pacific region for health, education, research, and training. Within this, RCH is also a cornerstone member of the Melbourne Children's Campus, partnering with Murdoch Children's Research Institute, The University of Melbourne Department of Paediatrics and The Royal Children's Hospital Foundation. Each organisation contributes to a paediatric academic health centre which is greater than the sum of its parts.</p> <p>RCH has cared for the children and young people of Victoria for more than 150 years since it was founded in 1870. A full range of paediatric and adolescent health services are provided plus tertiary and quaternary care for the most critically ill and medically complex patients in Victoria, Tasmania, southern NSW and other states around Australia and overseas. The RCH is the only provider of heart transplant services and CAR T-cell therapy for paediatrics in Australia. RCH is an effective advocate for patients and their families with a particular focus on vulnerable children and increasingly, mental health in young people. The hospital also supports many health promotion and prevention programs. The Hospital has more than 6,000 staff, a budget of \$850M, 12 wards and 350 beds. Annually, the RCH has 300,000+ Specialist Clinic appointments, 90,000+ Emergency Department presentations and 20,000 elective surgeries.</p> <p>We work collaboratively with hospitals to deliver the right care, in the right place, at the right time. The RCH is committed to the Child Safe Standards https://www.rch.org.au/quality/child-safety/.</p> <p>RCH enjoys high employee engagement and is committed to staff safety and a positive culture through enactment of our Compact.</p> <p>Further information on RCH is available at www.rch.org.au</p>

ROLE CONTEXT
<p>The Centre for Health Analytics is an exciting collaborative venture for the Melbourne Children's campus partners – The Royal Children's Hospital, MCRI and The University of Melbourne.</p> <p>The Centre enables the vision of Melbourne Children's to become an internationally leading paediatric campus in the use of data to improve all aspects of patient care, operations, education, and research. The Centre delivers data services to the Campus, enabling access to data and analytics support, builds data infrastructure and is building a</p>

data enabled workforce through a range of workforce development initiatives. Our vision being to unleash the power of data to improve health.

ROLE PURPOSE

The Machine Learning Data Scientist will work in the areas of child health informatics and analytics, within the Centre for Health Analytics (CHA). The role will be involved in long-term strategic outcomes that include the development of reusable AI products leveraging hospital data assets and developed CHA sociotechnical and process stack. This stack also positions CHA to respond and deliver to hospital and clinical projects requiring advanced analytics, and the role will also work in close collaboration with CHA Clinical Data Analysts as part of operational outcomes. Responsibilities will include delivering advanced analytic projects; providing expert guidance and advice, managing capability development and supervision, and manage successful delivery of those projects. Where relevant, the role will support the Centre to pursue external revenue and grant-seeking activities. The Machine Learning Data Scientist will work closely with the Data Innovation Lead to deliver hospital and research data analytic outcomes.

KEY ACCOUNTABILITIES

Technical

- Provide machine learning expertise and supervision to manage paediatric health analytics and AI solutions across CHA priorities.
- Lead technical delivery within assigned work packages for machine learning approaches for child health use cases, including large language models and NLP, computer vision, deep learning, and predictive modelling using unimodal and multimodal electronic health record data.
- Design and implement AI frameworks and methods for extracting structured information from unstructured clinical reports and imaging or histopathological data.
- Manage reusable generalised medical AI assets, as prioritised by the Data Innovation Lead and CHA, including large-scale data preparation, feature computation and embeddings, model lifecycle pipelines, and synthetic data generation where appropriate.
- Develop and apply statistical and machine learning methods, including named entity recognition and linking models, inference rules, and probabilistic or simulation approaches, as required for project delivery.

Stakeholder Management

- Work with the Data Innovation Lead, clinical data analysts and stakeholders to analyse health data problems, define solution requirements, and align technical delivery with clinical and operational needs.
- Manage collaborative relationships with data governance, digital or engineering teams and business units to deliver data products that support predictive analytics, NLP and other AI-driven use cases.
- Communicate technical concepts and trade-offs clearly to both technical and non-technical audiences to support shared understanding and decisions.

Administration

- Plan and deliver assigned ML work packages across multiple concurrent projects, including progress tracking and timely status reporting.
- Maintain fit-for-purpose documentation and technical artefacts, including review of designs, requirements and specifications with attention to detail.
- Lead robust data governance, metadata management and model monitoring practices that enable data integrity, compliance and responsible AI.

- Direct continuous improvement of ML delivery practices, including maintaining reliable data pipelines and ETL processes and supporting automation, CI/CD and reusable deployment components where relevant.
- Lead research outputs where relevant, including preparation of data and text for papers and presentations.

Teamwork

- Provide day-to-day technical leadership for ML delivery, and manage direct reports where applicable, such as an ML postdoctoral researcher or ML analyst.
- Lead a positive, collaborative and supportive work environment within the Centre for Health Analytics, including sharing learnings and reusable work products with team members.
- Build and maintain a good working relationship with the other campus data related teams and a wide range of MCRI and RCH stakeholders including Heads of Departments, Group Leaders, Researchers and Clinicians to ensure the Centre for Health Analytics achieves its goals.
- Conduct cross training and opportunities for shared learnings amongst Campus team members including knowledge sharing and code sharing.
- Report on the status of work packages for which you are responsible.
- Support to strategic planning of the Centre for Health Analytics where appropriate.

QUALIFICATIONS AND EXPERIENCE

Essential

- Post-graduate qualification in machine learning (or related field), combined with significant relevant industry experience of applied experience gained through practical experience, training or professional accreditation.
- Demonstrated experience developing and applying advanced machine learning, deep learning, and NLP models to deliver impactful predictive modelling and analytical outcomes (experience in health, clinical, or hospital contexts is highly regarded). Strong technical proficiency in building scalable analytics and ML solutions using Python and SQL, with experience working on cloud-based data platforms and data warehousing environments.

Desirable

- Familiarity with end-to-end machine learning lifecycle management, including MLOps, CI/CD practices, and progressing models from proof of concept to production.
- Knowledge of statistics in a medical or healthcare setting, and confidence interpreting health datasets using statistical tools.
- Demonstrated ability to translate complex clinical or business requirements into robust technical solutions that direct analytics and AI outcomes.

KEY SELECTION CRITERIA

- Post-graduate qualification in machine learning or similar, with demonstrated applied expertise in building and delivering machine learning solutions.
- Demonstrated experience applying natural language processing and machine and deep learning methodologies, including large language models, to deliver outcomes in applied settings.
- Demonstrated experience working with health, clinical or hospital data and problem contexts, and applying ML methods in ways that support adoption and use in practice.

- Strong understanding of machine learning lifecycle management, including data preparation, evaluation, deployment readiness and monitoring expectations.
- Demonstrated experience developing scalable analytics and machine learning solutions using Python and SQL, including experience working with cloud-based data platforms and data warehousing concepts.
- Demonstrated ability to learn new ML concepts quickly, handle ambiguity, and progress work from proof of concept to production or effective use.
- Demonstrated ability to work independently and collaboratively, manage competing priorities, and communicate complex technical concepts clearly to technical and non-technical stakeholders.

OTHER REQUIREMENTS

- Employees are required to undertake a National Criminal Record Check and a Working with Children Check prior to commencing employment
- Employees are required to maintain a valid Working with Children Check throughout their employment
- A current, full driver's licence for the State of Victoria which is appropriate for the type of vehicle being driven, and comply with any restrictions on their licence (e.g. wearing glasses) while undertaking hospital duties (If applicable)
- Employees are required to maintain compliance with RCHs "Staff Immunisation - Prevention of Vaccine Preventable Diseases" procedure.

IMPORTANT INFORMATION

All employees are required to adhere to the Royal Children's Hospital Values:

- Curious - We are creative, playful and collaborative
- Courageous - We pursue our goals with determination, ambition and confidence
- Inclusive - We embrace diversity, communicate well, build connections and celebrate our successes together
- Kind - We are generous, warm and understanding

RCH COMPACT

All new and existing employees commit to the RCH Compact by promoting and demonstrating a strong and respectful culture.

- We do better work caring for children and families when we also care for each other
- I bring a positive attitude to work – I share, I laugh, I enjoy other's company
- I take responsibility for my behaviour and its impact on others
- I am curious and seek out ways to constantly learn and improve
- I celebrate the good stuff, the small stuff, the big stuff – it all matters
- I speak up when things aren't right
- I value the many different roles it takes to deliver great patient care
- I actively listen because I want to understand others and make better decisions
- I am inclusive and value diversity
- When it comes to teamwork, I don't hold back – I'm all in

QUALITY, SAFETY AND IMPROVEMENT

RCH employees have a responsibility and accountability to contribute to the organisation's commitment to Quality, Safety and Improvement by:

- Acting in accordance and complying with all relevant Safety and Quality policies and procedures
- Identifying risks, reporting and being actively involved in risk mitigation strategies
- Participating in and actively contributing to quality improvement programs
- Complying with the requirements of the National Safety & Quality Health Service Standards
- Complying with all relevant clinical and/or competency standards
- Complying with the principles of Patient and Family Centred Care that relate to this position

The RCH is committed to a diverse and inclusive workforce. We encourage applications from Aboriginal and Torres Strait Islander people, people from culturally and/or linguistically diverse backgrounds, all members of the LGBTQI community and people with disability.

Position description last updated

March 2026