

POSITION DESCRIPTION

Position Title:	Senior Scientific Software Engineer
Cluster / Business Unit / Division	Clayton Campus
Section or Unit:	Controls & Scientific Computing
Classification:	Band 6
Job Family:	Engineering and Technical
Position Description Number:	PD-1807
Work Contract Type:	Technical
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The Senior Scientific Software Engineer is responsible for managing the design, development and operation of specialised software applications, with a strong focus on projects for the Science department which support the needs of the facility.

ORGANISATIONAL ENVIRONMENT

ANSTO is the national organisation for nuclear science and technology. We focus on undertaking leading edge research, delivering innovative scientific services and providing specialised advice to government, industry, academia and other research organisations.

The Synchrotron Light Source Australia (SLSA) provides world-leading technical capability, and the nucleus around which new science and industry networks form as researchers interact. The synchrotron delivers better and faster experimental techniques that not only enhance current fundamental and applied research, but also open up new avenues of investigation to Australian science. The facility promotes international collaboration to enable leading-edge research and development, and is a hub for research that greatly benefits Australia and its regional neighbours.

The Controls and Computing team is responsible for enabling world-class synchrotron tools to support the Australian Synchrotron in achieving its objectives. High performance solutions come through the effective interaction of Controls and Computing with the Synchrotron's Engineering and Science teams. Controls and Computing ensures it is world-class by collaborating with peers in large science facilities nationally and internationally. Controls and Computing develops standards and specifications and engages external suppliers to provide optimal solutions. Where an appropriate solution cannot be sourced, the team designs solutions in-house.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

- Plan, design, implement, maintain and support new software applications and workflows for data analysis that support the scientific and corporate needs of the Australian Synchrotron.
- Lead projects to develop new software applications to support the business need of the Australian Synchrotron.
- Lead the developments of new algorithms and data processing tools that support rapid complex data analysis and visualisation.
- Facilitate and promote the adoption of procedures and best-practises applicable in scientific software development.

- Identify new Scientific Computing projects and contribute to the development of the Scientific Computing strategy.
- Strengthen the engagement with other Synchrotron facilities on standards for workflows and data formats.
- Engage with other research organisations and eResearch partners on collaborative projects.
- Drive the publication of articles in relevant scientific journals and present at national and international conferences about achievement in Scientific Computing at the Australian Synchrotron.
- Undertake additional duties as required and during period of leave of other staff.

Decision Making

This role makes decisions related to:

- Technology decisions
- Project planning, development and deployment
- Prioritising project deliverables
- Assigning tasks to developers on the project
- Project communications
- Organisation and running of training sessions
- Responding to feature and change requests from project stakeholders (accept/reject)
- Broad scope and overall purpose of software projects and how they will interact with other software and other IT infrastructure already in place in general.

This role makes decisions following consultation with others related to:

- Submission of project requests and project change requests according to the Project Management Framework
- Purchase requests for equipment needed for the project.
- Changes to core IT infrastructure.
- Project risk mitigation strategies in general.
- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

Key Challenges

- Ensuring the successful implementation of strategic objectives and project completion whilst managing conflicting priorities and deadlines;
- Keeping abreast of recent developments in field, ensuring continual improvement and implementation of best practise.
- Improving customer service, response times and delivery efficiencies;
- Maintain effective relations and communication with clients, vendors, team members, engineers in other teams, and collaborators
- Ability to communicate across engineering and scientific disciplines. Interpret scientific requirements and translate them to a control system specification. Develop, apply and maintain standard solutions
- Provide solutions in a timely manner. Deployment of solutions is done during shutdown maintenance windows. Planning of work and your availability during these windows is essential.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Principal Scientists, Group Leaders, Mechanical/Electrical Engineers, Technicians, Controls Engineers (team)	Regularly or more often to work collaboratively together on projects/provide advice and instructions on control systems, priorities where higher level input is required and to provide advice on technical feasibility/practicality on challenges relevant to their areas of responsibility
Scientists	Frequently to discuss performance of control system and develop requirements for new systems
Software Engineers	Where required, mentor and coach (Scientific) Software Engineers involved in the projects; provide guidance and leadership on software development
Software Developers including Contractors	Where required, mentor and coach any project contractors; provide technical leadership on software development
Procurement Department	To liaise for procurement as required
External	
Experts/colleagues at other facilities	As required depending on requirements to maintain knowledge of technical developments at other facilities which may be relevant and transferrable. Seek and provide advice as required
Specialist contractors/Suppliers	Monthly or as required to seek specialist services or advice or to purchase specialist equipment

POSITION DIMENSIONS

Staff Data	
Reporting Line	Reports to the Leader, Software Engineering
Direct Reports	Nil
Indirect Reports	The role may be assigned a delivery / project team or an individual to deliver a scope of work and will be required to monitor progress, quality of work and take ultimate responsibility for the outcomes. Leadership responsibilities also extends to management and responsibility for contractors, interns, work experience students and their work.

Special / Physical Requirements	
Location:	Clayton Working in different areas of designated site/campus as needed
Travel:	May be required to travel to ANSTO sites from time to time

Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Labour intensive physical requirements (sitting, standing, frequent manual handling up to 20kg) Standing for long periods Frequent movements (climbing, stooping, kneeling, crouching, crawling) Public speaking Wearing personal protective equipment for the handling of hazardous and/or radioactive materials
Radiation areas:	May be required to work in radiation areas under tightly regulated conditions
Hours:	Willingness to work extended and varied hours based on operational requirements After hours work may be required for short and infrequent periods
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements

Workplace Health & Safety	
Specific role/s as specified in AG-2362 of the ANSTO WHS Management System	All Workers
	Officer (definitions found in appendix 1 of AG-2362)
	Managers / Leaders / Supervisors
	Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties
	All Workers

ORGANISATIONAL CHART

Ref published Organisation Chart

KNOWLEDGE, SKILLS AND EXPERIENCE

1. Tertiary qualification (minimum Bachelor's degree) in the field of Information Technology or equivalent qualification (Computer Science, Software Engineering, Physics).
2. At least 6 years of experience in software engineering (or equivalent), through the whole software development cycle including requirements gathering, design, implementation and testing.
3. Solid knowledge, and experience, with a variety of programming languages such as Java, Python, C/C++, IDL, Matlab, PHP and Javascript.
4. Understanding of scientific computing. Competent with implementing mathematical models in software as described for example in relevant science publications.
5. Good knowledge, and experience with, web server (Apache/Nginx, Tomcat) and database technologies (Oracle, Postgres, MySQL)
6. Experience with managing agile software development projects.
7. Well developed, effective oral and written communication skills, together with proven abilities in liaising effectively with people at all levels.
8. Ability to balance competing priorities effectively and produce quality work within tight time constraints.
9. Ability to work both as a part of a team and autonomously and an aptitude for self-learning and interest in emerging technologies.

Desirable

1. Master's Degree or PhD in Engineering or Science.
2. Research experience.
3. Solid technical knowledge of different operating systems (Windows Server, Linux, MacOS).

VERIFICATION

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

Line Manager		Delegated Authority	
Name:	Andreas Moll	Name:	Paul Martin
Title:	Leader, Software Engineering	Title:	Head of Controls & Computing
Signature:		Signature:	
Date:		Date:	

Appendix 1

ANSTO Job Families
Accounting & Finance
Administration
Communications & Marketing
Compliance & Regulation
Engineering and Technical
Human Resources
ICT & Digital Solutions
Information & Knowledge Management
Legal
Manufacturing
Monitoring & Audit
Operations
Organisational Leadership
Project & Program
Research
Science
Security & Intelligence
Senior Executive
Service Delivery
Strategic Policy
Trades & Labour