

**NOTES**

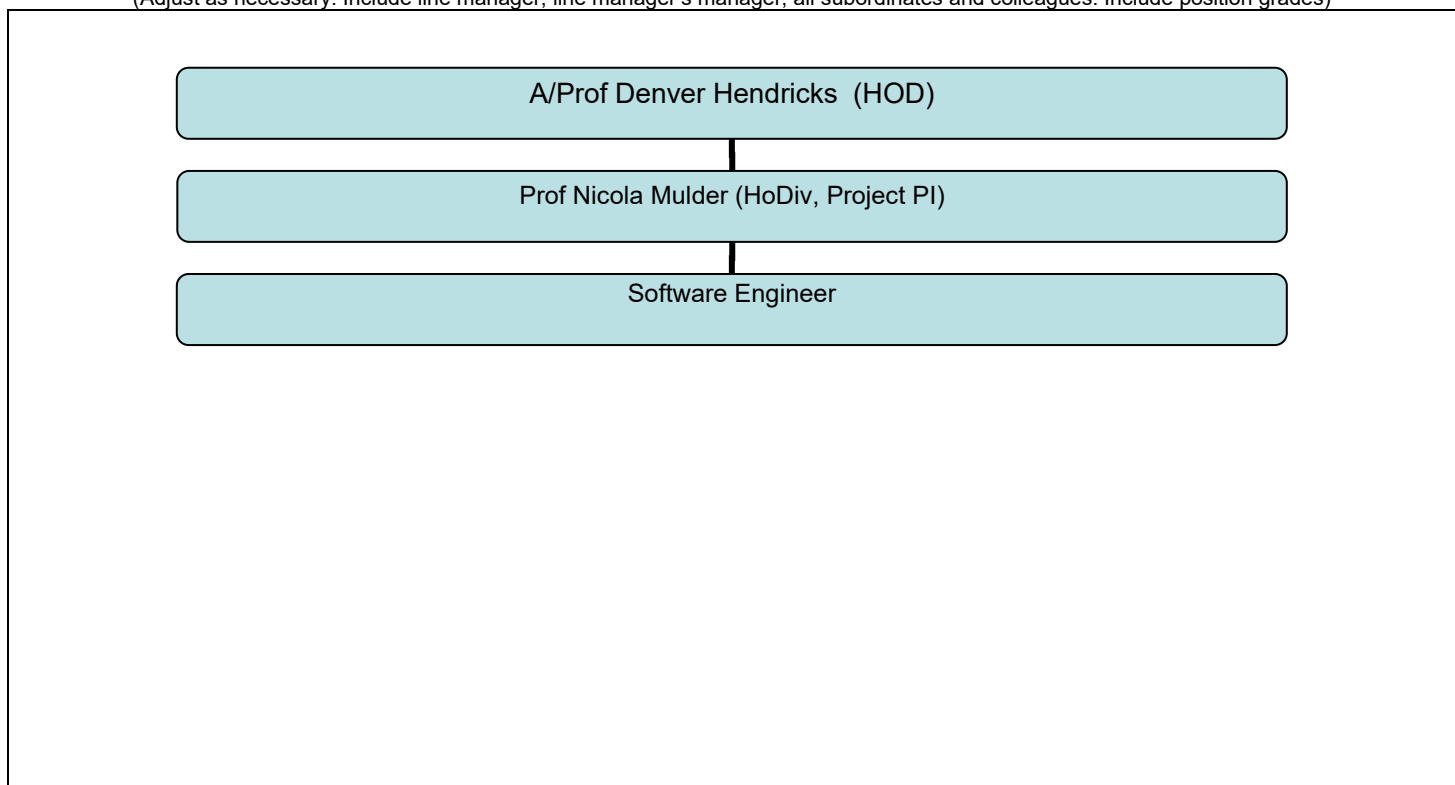
- Forms must be downloaded from the UCT website: <http://forms.uct.ac.za/forms.htm>
- This form serves as a template for the writing of position descriptions.
- A copy of this form is kept by the line manager and the position holder.

**POSITION DETAILS**

Position title	Software Engineer		
Job title (HR Practitioner to provide)			
Position grade (if known)	10	Date last graded (if known)	
Academic faculty / PASS department	Health Sciences		
Academic department / PASS unit	Integrative Biomedical Sciences		
Division / section	Computational Biology		
Date of compilation	November 2021		

**ORGANOGRAM**

(Adjust as necessary. Include line manager, line manager's manager, all subordinates and colleagues. Include position grades)



**PURPOSE**

The main purpose of this position is to do Software development and implementation of international (GA4GH) data sharing and analysis standards and application programming interfaces for the eLwazi open data science platform (ODSP). The Software Developer will be responsible for development of the ODSP, including a data registry, a metadata catalogue, tools registry, workflows and execution of workflows on a variety of computing environments. He/she will work with data experts on the development of ODSP and will contribute to development and implementation of GA4GH standards and APIs for federated analysis. He/she will work with the eLwazi team at UCT and collaborating sites in Africa, the USA and the UK..

**CONTENT**

<b>Key performance areas</b>		<b>% of time spent</b>	<b>Inputs</b> (Responsibilities / activities / processes/ methods used)	<b>Outputs</b> (Expected results)
E.g.	General and office administration	25%	Takes, types up and distributes minutes and agendas for monthly departmental meeting.  Greets visitors, enquires as to the nature of their visit and directs them to the appropriate staff member.	All staff members receive an electronic copy of accurate minutes and agendas, in the departmental template/format, a week before the meeting.  Visitors are directed to appropriate staff member in a professional and efficient manner.
1	Develop Open Data Science Platform infrastructure	20%	-Adaptation of Terra and Gen3 systems for local data repositories and computing environments -liaise with HPCs and Cloud providers for access	Open data science platform infrastructure in place
2	Create and populate data and tool registries	20%	Work with collaborators on building standard data models and metadata catalogue	Data model and metadata catalogue developed
3	Implement GA4GH standards and APIs for data, tools and workflows	30%	Use GA4GH standards and APIs to create data, tools and workflow registries, implement Authentication and Authorization tools for secure access	GA4GH standards and APIs implemented
4	Pipeline development and workflow containerization	20%	-develop new or source existing containerized workflows for collaborators -index workflows and tools in Dockstore and registries	Workflows developed, tools and workflows in registry. Deployed on Cloud and HPCs
5	Infrastructure documentation and user support	10%	-documentation for platform and users -Support users of the platform	Users supported

### MINIMUM REQUIREMENTS

Minimum qualifications	Masters degree (or equivalent) in bioinformatics, computer science, or engineering with 3 years' experience in software engineering or Honours degree with 4-5 years' experience in software engineering			
Minimum experience (type and years)	As above			
Skills	Software development, programming, containerization, data standards, communication			
Knowledge	Programming and web development tools, APIs, Bioinformatics applications, Cloud computing			
Professional registration or license requirements	None			
Other requirements (If the position requires the handling of cash or finances, other requirements must include 'Honesty to handle cash or finances'.)	None			
Competencies (Refer to <a href="#">UCT Competency Framework</a> )	Competence	Level	Competence	Level
	Analytical thinking	2	Communication	2
	Problem solving	2	Planning and organizing / work management	2
	Building interpersonal relationships	2	Professional knowledge and skill	2
	Client/student service and support	2	Individual Leadership	2

### SCOPE OF RESPONSIBILITY

Functions responsible for	Software engineering and development
Amount and kind of supervision received	Input from line manager in terms of guidance where needed
Amount and kind of supervision exercised	N/A
Decisions which can be made	Detailed technical decisions can be made
Decisions which must be referred	High level technical decisions and decisions that might affect timelines or impact of project needs to be referred to line manager

### CONTACTS AND RELATIONSHIPS

Internal to UCT	Professor Nicola Mulder (Head of Division)
External to UCT	Open Data Science Platform collaborators