

Title of Position Coordinator: Bioinformatics Developer

Employer: University of the Western Cape -> South African National Bioinformatics Institute

Type of Position: Fixed Term Contract

Length of Contract Period: 1 Year contract position

Location: Main Campus - Bellville, WC ZA (Primary)

Closing Date: 31/12/2024

Job Overview

We are seeking an innovative and technically skilled **Senior Bioinformatics Developer** to play a pivotal role in the **ISO-in-a-Box Project**, a groundbreaking initiative aimed at enhancing bioinformatics capabilities and operational standards in public health genomics. This role focuses on developing, optimizing, and maintaining bioinformatics workflows for the analysis of **Mycobacterium tuberculosis (MTB) genomic data**, contributing to automated testing, continuous integration, and quality assurance processes.

As a key member of the team, you will leverage your expertise in workflow platforms such as **Nextflow** and **Galaxy** to design and validate robust bioinformatics pipelines that follow best practices in integrating with quality management systems, ensuring seamless integration with the project's digital research infrastructure. Your work will directly support public health laboratories and research institutions in achieving ISO certification and advancing pathogen genomics research.

Key Responsibilities

Workflow Development and Optimization:

- Design, implement, and maintain bioinformatics workflows for **MTB genomic data analysis**, utilizing platforms such as Nextflow and Galaxy.
- Ensure workflows are robust, scalable, and aligned with ISO standards for data quality and reproducibility.
- Collaborate with bioinformaticians and data scientists to incorporate cutting-edge tools and algorithms.

Automation and Integration:

- Develop automated testing frameworks and continuous integration pipelines to streamline workflow deployment and validation.
- Optimize workflows for seamless integration with diverse computational environments, including high-performance computing (HPC) clusters and cloud platforms.

Stakeholder Collaboration:

- Engage with internal and external stakeholders to understand workflow requirements and deliver tailored solutions.
- Provide technical support and training to users on workflow deployment and usage.

Documentation and Compliance:

- Develop comprehensive documentation for workflows, including user guides, technical specifications, and quality control procedures.
- Ensure all workflows adhere to best practices and can be made “ISO ready” with suitability for use in ISO-compliant public health laboratories.

Minimum requirements

Essential:

- Master’s degree in Bioinformatics, Computational Biology, Computer Science, or a related field.
- Extensive experience in developing bioinformatics workflows, with expertise in **Nextflow** and **Galaxy**.
- Strong understanding of **Mycobacterium tuberculosis genomics data analysis** and associated tools and pipelines.
- Proficiency in programming and scripting languages such as Python, R, Bash, or Groovy.
- Proficiency in markup languages such as XML, YAML and JSON.
- Experience with automated testing, continuous integration (CI/CD), and the git version control systems.
- Knowledge of bioinformatics infrastructure, including HPC environments and cloud computing.

Desirable:

- PhD in Bioinformatics, Computational Biology, Computer Science, or a related field.
- Familiarity with ISO standards and their application in bioinformatics workflows.
- Experience in developing and optimizing workflows for public health applications or resource-limited settings.
- Knowledge of the conda software packaging system.
- Knowledge of containerization technologies (e.g., Docker, Singularity) and workflow orchestration.
- Understanding of quality assurance practices in bioinformatics.

Key Competencies

- Strong analytical and problem-solving skills, with a focus on developing efficient and scalable solutions.
- Ability to work collaboratively in multidisciplinary teams.
- Excellent organizational skills and attention to detail, particularly in documentation and workflow validation.
- Commitment to advancing public health and bioinformatics capacity-building.

This post is a 12 month, fixed term contract that may be renewed based on performance. Only applicants with South African citizenship, work permit or residency will be considered.

For enquiries about this post, please contact Alan Christoffels at alan@sanbi.ac.za.

To apply, please email the below documents in a **single pdf file** to fungiwe@sanbi.ac.za.

- Cover letter
- Curriculum vitae (CV)

Please ensure that the title and reference number are indicated in the subject line.

An application which does not comply with the above requirements will be regarded as incomplete. Only shortlisted candidates will be contacted and may be required to undergo a competency test.

DISCLAIMER: By applying for the position, you consent to the University sharing your application, including curriculum vitae, with University stakeholders to process the application. In line with the University's commitment to diversifying its workforce, preference will be given to suitably qualified applicants in line with our Employment Equity Targets. The official retirement age at UWC is 65 years. The University reserves the right to not make an appointment, make an appointment at a different level, seek additional candidates and may conduct competency assessments.