

Job Description for Professional Posts

Reference: NA2024/45

Position and Grade:	Associate Computer Scientist/Computational Biologist, P2
Organizational Unit:	Plant Breeding and Genetics Laboratory Plant Breeding and Genetics Section Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture
Duty Station:	Seibersdorf
Type/Duration of Appointment:	FT – JPO, 1 year

Organizational Setting

The Department of Nuclear Sciences and Applications implements the IAEA's major programme on nuclear techniques for development and environmental protection (Major Programme 2). This major programme comprises individual programmes in food and agriculture, human health, water resources, environment and radiation technologies. These programmes are supported by laboratories in Seibersdorf, Monaco and Vienna. The major programme's objective is to enhance the capacity of Member States to meet basic human needs and to assess and manage marine and terrestrial environments using nuclear and isotopic techniques in sustainable development programmes.

The Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture is in the Department of Nuclear Sciences and Applications of IAEA in Vienna. The Joint Centre assists Member States of the Food and Agriculture Organization of the United Nations (FAO) and IAEA in using nuclear techniques and related technologies to improve food security, to alleviate poverty and to promote sustainable agriculture. It does so by coordinating and supporting applied research, providing technical and advisory services, laboratory support and training, and collecting, analysing and disseminating information. The Joint Centre consists of five sections in the areas of: animal production and health; plant breeding and genetics; insect pest control; soil and water management and crop nutrition; and food safety and environmental protection. Each section has an associated laboratory, as part of the FAO/IAEA Agriculture & Biotechnology Laboratories (ABL) located in Seibersdorf, 45 km southeast of Vienna.

The Plant Breeding and Genetics Section and its Laboratory (PBGL) assist Member States with the development, dissemination and transfer of plant mutation breeding and related technologies for sustainable intensification of agricultural production systems with the objective of supporting FAO and IAEA Member States to improve food and nutrition security and climate-smart, sustainable agriculture.

Main Purpose

The incumbent will assist in developing methods and protocols in plant genetics, genomics, and molecular breeding. He or she will contribute innovative R&D, provide relevant services, and support PBGL's capacity building and outreach activities. Goals are the development and adaptation of technologies to produce superior crop varieties with, in, and for Member States. The incumbent will work in the PBGL research team.

Role

The Associate Computer Scientist/Computational Biologist will be involved in the collaborative development of reproducible software solutions for analysing (big) data. She/he will keep clear, concise, and state-of-the art records, draw conclusions and report findings to the relevant audiences in presentations, training courses, and, if appropriate, through journal articles. The activities will provide the incumbent with a unique learning experience in applied R&D in the context of international development cooperation.

Partnerships

Reporting to the Laboratory Head, the incumbent will work closely with staff members of the PBGL on collaborative projects. She/he will frequently liaise with the IT-Innovations Lead in IAEA's IT-Department in Vienna (MT-IT) and maintain a good collaborative relationship. In general, the incumbent contributes to fostering a collaborative work environment within the PBGL team, the PBG Section, the agency and maintains additional collaborative relationships with Member States' institutions and relevant international organizations as appropriate.

Functions / Key Results Expected

The incumbent will, under competent guidance and supervision, carry out data analysis and computational tasks related to the activities of the PBGL, utilising resources of IAEA and the PBG Subprogram. The focus will be on developing technology packages with the aim to accelerate development of superior crop varieties for Member States of FAO/IAEA. Specifically, the Associate Computer Scientist/Computational Biologist will:

- Develop, document, and maintain reproducible data analysis software workflows and manuals.
- Participate in and contribute to the development of novel approaches and analysis tools for phenotypic screening assays to enhance the efficiency of selecting desired mutation events for further characterization.
- Use existing and develop novel approaches and analysis tools for genome analysis and phenotype-genotype associations to identify causal variants for further characterization and utilisation. This will include bioinformatics analyses of Next Generation Sequencing (NGS) and other -omics data to support forward and reverse genetic approaches.
- Contribute to the dissemination of the results, which will include producing reproducible protocols for internal use as well as for use by partners in Member States and other stakeholders.
- Contribute and/or lead scientific publications and provide input to internal and external information material highlighting the activities of PBG Laboratory's work.

Competencies and Expertise **(do not revise or edit)**

Core Competencies		
Competence	Occupational Role	Behavioural Indicator
Communication	Individual Contributor	Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen and understand the perspective of others and proposes solutions.
Achieving Results	Individual Contributor	Takes initiative in defining realistic outputs and clarifying roles, responsibilities and expected results in the context of the Department/Division's programme. Evaluates

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		his/her results realistically, drawing conclusions from lessons learned.
Teamwork	Individual Contributor	Actively contributes to achieving team results. Supports team decisions.
Planning and Organizing	Individual Contributor	Plans and organizes his/her own work in support of achieving the team or Section's priorities. Takes into account potential changes and proposes contingency plans.

Functional Competencies		
Competence	Occupational Role	Behavioural Indicator
Analytical Thinking	Associate	Gathers and analyses information, identifying critical relationships and patterns among data and proposes workable solutions.
Knowledge sharing and learning	Associate	Actively seeks opportunities to learn by formal and informal means; learns from others, adopting and sharing best practice.
Technical/Scientific Credibility	Associate	Acquires and applies new skills to remain up to date in his/her area of expertise. Reliably applies knowledge of basic technical/ scientific methods and concepts.

Expertise	
Expertise	Description
Computer Programming	Fluency in Unix/Linux and demonstrated proficiency in one or more standard scripting languages (Python, etc) is a must. Proficiency in one or more programming language (C/C++, etc) is an asset
Collaborative Development	Evidence of previous collaborative work in the field of software development (i.e., a github repository) is a strong asset.
Analysis workflows	Experience in developing/deploying analysis workflows in a server/cluster environment is an asset.
Bioinformatics	Prior knowledge in Bioinformatics is an asset.
Biology/Genetics	Knowledge of molecular genetic strategies, especially high-throughput techniques, for gene identification and annotation in crops is an asset.
Interdisciplinarity	A track record of interdisciplinary work at the interface of Computer programming and Science is an asset.

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Education, Experience and Language Skills

- University degree in Computer Science (E.g., University degree in Computational Biology, Bioinformatics, Statistics, Math/Physics, Genetics, Molecular Biology, Agricultural sciences, or related field). Advanced degree would be an asset.
- Minimum of two years documented work experience applying computer programming to scientific problems or related experience.
- Experience in Bioinformatics will be an asset.
- Excellent oral and written command of English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian and Spanish) is an asset.