



Job Description Print Report

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Position Review

Position Number	127690	Position Type	CFE/JPO	Subject to Radiation	No	Subject to GD	No
Hyperion Position Number	N0046	Fund Type	EBR	Parent Position	007416 Section Head (SGIM-ISI)		
Organization	SGIM-State Infrastructure Analysis Section	FTE	1	CCOG 1	1J03		
Grade	P4	Duty Station	Vienna, Austria	CCOG 2			
Classified Grade		Position Title	Image Scientist and Technical Expert	Proposed New Title			

Job Description Review

Organization Settings

The Department of Safeguards is the organizational hub for the implementation of IAEA safeguards. The IAEA implements nuclear verification activities for some 180 States in accordance with their safeguards agreements. The safeguards activities are undertaken within a dynamic and technically challenging environment including advanced nuclear fuel cycle facilities and complemented by the political diversity of the countries.

The Department of Safeguards consists of six Divisions: three Operations Divisions: A, B and C, for the implementation of verification activities around the world; three Technical Divisions: Division of Concepts and Planning, Division of Information Management, and Division of Technical and Scientific Services; as well as two Offices: the Office of Safeguards Analytical Services and the Office of Information and Communication Services.

The Division of Information Management comprises four Sections and provides the Department of Safeguards with data processing services, secure information distribution, information analysis and knowledge generation necessary to draw independent, impartial and soundly based safeguards conclusions.

Main Purpose

Reporting to the Section Head (SGIM-ISI), the Image Scientist and Technical Expert provides the Section with expertise in the field of new technologies associated with satellite imagery and geospatial analysis. He/she is responsible for investigating pre-processing techniques and introducing additional value-added post-processing techniques to further enhance the commercial satellite imagery used by the Section's analysts, both electro-optical (EO) and synthetic aperture radar (SAR). In addition, the Image Scientist and Technical Expert contributes to the development and implementation of automation and integration of artificial intelligence techniques (machine learning and deep learning) to strengthen the analysis of commercial satellite imagery, to support the selection of the most relevant data, and to develop more effective verification processes.

Role

The Image Scientist and Technical Expert is: 1) a specialist in the manipulation and advanced processing techniques for satellite imagery (all types of space-borne sensors); 2) a project manager, developing new approaches to meet analytical business needs in the area of post-processing techniques; 3) a subject matter expert in implementing and integrating modern remote sensing and imagery science techniques with satellite imagery and geospatial information in order to provide value-added data and tools for imagery analysts.

Partnership		
The Image Scientist and Technical Expert works closely with imagery and geospatial analysts as the focal point for the development of emerging technologies and to support value-added image processing techniques and with the Safeguards Information Analyst (Image Processing) to provide updated or improved image processing algorithms. He/she also collaborates with Safeguards Information Analysts (Satellite Imagery), Safeguards Information Analysts (Geospatial Technology) and other stakeholders within the Division and Department to coordinate and consolidate technical requirements.		
Functions / Key results Expected		
- Lead projects focused on developing and applying emerging technologies such as machine-learning and deep-learning algorithms, which will enable imagery and geospatial analytics, as well as product functionality. - Develop rapid Proof of Concept prototypes to determine the operational benefits and usability of new technologies and define associated methodologies. - Identify and implement value-added post-processing techniques to further enhance the exploitation of commercial satellite imagery, both electro-optical (EO) and synthetic aperture radar (SAR). - Interact with business users and analyse requirements to define the scope and analytics' business cases with primary emphases on incorporating image processing and enhancement algorithms into the Section's workflow. - Test and evaluate image processing algorithms to ensure conformity with established standards. - Investigate the use of multispectral data sources, including short wave infrared (SWIR), thermal infrared (TIR), hyperspectral imagery (HSI), and advanced synthetic aperture radar products to enhance the capabilities for site analysis and monitoring. - Organize and conduct, in cooperation with the Safeguards Information Analyst (Image Processing), technical discussions and training on developments and enhancements to image processing techniques. - Liaise with commercial vendors and contractors to explore additional image enhancement algorithms. - Work with the Member State Support Programmes and other SGIM Sections to develop approaches to emerging technologies.		
Competencies		
Core Competencies		
Competency	Occupational Role	Definition
Communication	Individual Contributor	Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen to and understand the perspectives 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 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		
Competency	Occupational Role	Definition
Client orientation	Specialist	Helps clients to analyse their needs. Seeks to understand service needs from the client's perspective and ensure that the client's standards are met.
Judgement/decision making	Specialist	Consults with supervisor/manager and takes decisions in full compliance with the Agency's regulations and rules. Makes decisions reflecting best practice and professional theories and standards.
Technical/scientific credibility	Specialist	Ensures that work is in compliance with internationally accepted professional standards and scientific

		methods. Provides scientifically/technically accepted information that is credible and reliable.
Expertise		
Expertise	Description	Asset
Information Management Guidance Development	Demonstrated ability to communicate effectively and present processing methods, techniques, and scientific findings associated with the use of advanced remote-sensing techniques in support of safeguards activities and more specifically, the interpretation and assessment of nuclear sites/infrastructure.	N
Information Management Information Analytics Expert Tools	Expert knowledge of image/data processing algorithms and techniques applicable to a diverse range of sensors and pre-processing levels. Good command of COTS software and demonstrated knowledge and skills using e.g. Python, GDAL, SQL.	N
Safeguards Quality Management	Ability to conceptualize and promote the implementation of new technical concepts for safeguards enhancement, as well as to keep abreast of developments in relevant information management and technologies.	Y
Languages		
Languages	Asset Languages	
English	Arabic Chinese French Russian Spanish	
Qualification		
Qualification Title	Description	
Master's Degree	Advanced university degree in data science, computer science, remote sensing, image science, image processing, photogrammetry, or a closely related field.	
Experience		
- Minimum of seven years of experience in data science, remote sensing, image processing, or other relevant fields of work. - Experience in machine-learning methodologies (e.g. supervised and unsupervised learning, deep learning, etc.) with a primary emphasis on all types of space-borne sensors. - Experience of incorporating image processing and image enhancement algorithms to enhance the visual interpretation of commercial satellite imagery and emerging sensors, including thermal infrared and satellite video. - Experience of leading projects to integrate analytical business needs with existing IT infrastructure and involving complex algorithm development.		