

Job Description

Job Title:	Optical Engineer and Remote Sensing Scientist (Member or Senior) Staff/Post-Doc
Location:	Albuquerque
Full/Part Time:	Full-Time
Regular/Temporary:	Regular

Department Description

The Mission Science and Analysis Department is responsible for advancing national security missions through the development of innovative concepts for remote sensing systems, signatures, and exploitation.

Hiring Manager

Jeffrey Mercier

Job Description

R&D S&E, Optical Engineering SE

The Mission Science and Analysis Department in the Monitoring Systems and Technology Center (MSTC) has an opening for a remote sensing scientist to execute mission engineering activities across multiple R&D sensor development efforts. The candidate will work on various remote sensing systems by performing end-to-end radiometric simulations for the evaluation of sensor utility and support future sensor designs. The candidate will also have opportunities to perform data analysis and exploitation for the purposes of vicarious sensor calibration and model validation. Job responsibilities will also include application specific algorithm development for multispectral remote sensing data. The candidate will also learn and continue to develop target and background signature phenomenology modeling and simulation codes. Future work will be motivated by the successful candidate's vision and will include the publication and presentation of significant research findings along with new sensor concept designs.

Required

- Master's degree in optical sciences, electrical/computer engineering, optical engineering or relevant discipline plus two or more years of experience; or PhD in optical sciences, electrical/computer engineering, optical engineering or relevant discipline; or equivalent combination of education and experience.
- Strong understanding of radiometry and optical imaging or remote sensing systems.
- Proficiency in high level scientific code and algorithm development, preferably Matlab and

IDL/ENVI.

- Strong capability in modeling and simulation, data exploitation, and signal or image processing.
- Academic knowledge of or past experience with satellite or remote sensing systems and payloads.
- Ability to obtain and maintain a required US DOE security clearance. The position will likely require higher-level clearance.
- Some travel is required.

Desired

- Experience with multispectral or hyperspectral data exploitation, mission analysis, sensor performance assessment, and system design.
- Familiarity with radiative transport and atmospheric simulation codes.
- Experience with laboratory testing including test design and setup, making optical measurements, performing data acquisition, and conducting instrument calibration.
- Fundamental understanding of Fourier Transform Infrared Spectroscopy.
- Self-direction and the ability to conceptualize and implement ideas without significant oversight.
- Ability to conceptualize new sensor designs driven by mission requirements and have a basic understanding of system engineering.
- Experience writing proposals for new technical work and interacting with customer organizations.

Contact

- Forward resumes to Joshua Zollweg: jdzollw@sandia.gov

The information below is “auto-populated” from the Job Requisition Request Form:

Applies integrated technical judgment--which requires using the scientific method to recognize and formulate problems, to collect data through observation and experimentation, and to formulate and test hypotheses--to anticipate, innovate, and deliver solutions to Sandia National Laboratories missions. Roots the work in the fundamentals of science and engineering while applying a deep understanding of engineering and scientific principles. Creates and applies scientific theories and laws and engineering methods used within scientific and engineering disciplines to develop or demonstrate new designs, concepts, materials, machines, products, processes, or systems. Uses physical and computational simulation, analysis, and evaluation as inherent activities of development. Plans, conducts, and executes Sandia's science and engineering programs within the spectrum of fundamental research, development, or demonstration.

Designs, analyzes, and tests optical and electro-optical systems and components, including lasers, fiber optics, and telecommunications systems. Conducts research or development into physical or geometric optics, lasers, laser characteristics, laser maintenance, and broadband optical sources. Applies research on optical systems to achieve desired optical manipulations. Performs research, design, modeling, analysis, and development in such areas as mechanical, optomechanical, electromechanical, structural, or thermal components and systems. Applies research to the planning, design, development, documentation of results, and testing of mechanical, optomechanical, and electromechanical systems, assemblies, components, instruments, or controls including servo mechanisms and systems, sensors and imaging detectors, lasers, and fiber optic products. Performs research, design, modeling, analysis, and development in mechanical, optical/photonic, electromechanical, structural, or thermal areas for production, transmission, measurement, and use of energy.

Plans, conceives, conducts, or manages research and development for Sandia's customers and sponsors.

Directs systematic study toward a fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts, and discovers new approaches to achieve goals.

Creates new understandings and capabilities by using the scientific method's hypothesis, test, and evaluation techniques; critical review; or similar engineering research and development methods.

Initiates, designs, develops, executes, and evaluates new processes, products, or systems through basic and applied research.

Uses engineering principles to research, design, or develop structures, instruments, machines, experiments, processes, systems, theories, or technologies; to construct or operate the same with full cognizance of their design; or to forecast their behavior under specific operating conditions.

Undertakes development and possible technology transfer of solutions, products, principles or technology.

Undertakes creative work, making systematic use of investigation or experimentation, to discover or revise knowledge of reality, and uses this knowledge to devise new applications.

Advanced technical degree or significant equivalent experience.

Technical knowledge and competencies appropriate to the position.

Thorough knowledge of and applied experience with scientific and engineering methods and with the discipline's standards for the ethical conduct of research.

Thorough knowledge of and experience with designing, planning, and executing research, design, and development projects.

Demonstrated knowledge of and experience with implementing policies affecting research, design, and development activities, projects, or initiatives.

Demonstrated ability to team across disciplines.

Security Clearance

Position requires a Department of Energy (DOE)-granted Q-level security clearance.

Sandia is required by DOE directive to conduct a pre-employment background review that includes personal reference checks, law enforcement record and credit checks, and employment and education verifications. Applicants for employment must be able to obtain and maintain a DOE Q-level security clearance, which requires U.S. citizenship.

Applicants offered employment with Sandia are subject to a federal background investigation to meet the requirements for access to classified information or matter if the duties of the position require a DOE security clearance. Substance abuse or illegal drug use, falsification of information, criminal activity, serious misconduct or other indicators of untrustworthiness can cause a clearance to be denied or terminated by the DOE, rendering the inability to perform the duties assigned and resulting in termination of employment.

EEO

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