

PREP Research Associate Announcement

This position is part of the National Institute of Standards and Technology (NIST) Professional Research Experience Program (PREP). The PREP program provides valuable research and laboratory experience, as well as financial support, to researchers at various stages of their academic and professional careers. Individuals in this position will perform technical work that advances scientific research and measurement science across multiple disciplines.

Research Title:

Research Associate – Applied Artificial Intelligence (AI) Scientist for Manufacturing

The work will entail:

The Applied Artificial Intelligence (AI) Scientist for Manufacturing will serve as a technical expert in the design, development, evaluation, and deployment of trustworthy AI technologies to advance U.S. manufacturing competitiveness, productivity, and quality. The successful candidate will contribute to cutting-edge research initiatives and support the transition of innovative AI-enabled manufacturing solutions from the laboratory to operational manufacturing environments.

Key responsibilities

Responsibilities include, but are not limited to:

Technical Development and Implementation:

- Design, develop, and deploy applied AI solutions focused on addressing key manufacturing challenges, including process optimization, quality assurance, predictive maintenance, digital engineering, and production planning.
- Integrate AI technologies into manufacturing systems, workflows, and operational processes to improve performance, efficiency, and decision-making.

Research and Technical Analysis

- Conduct advanced research and technical analyses to develop and evaluate trustworthy AI approaches for manufacturing applications.
- Contribute to measurement science research supporting the evaluation, validation, and assurance of AI-enabled manufacturing systems.

Technical Collaboration and Coordination

- Collaborate with researchers and technical experts across NIST, academia, industry, and external partner organizations to advance AI-enabled manufacturing research.
- Support the development of technical guidance, best practices, and standards-related activities related to AI in manufacturing.

Technology Transition and Stakeholder Engagement

- Support the transition of research outcomes into scalable, operational solutions for U.S. manufacturers and manufacturing technology stakeholders.

- Contribute to pilot implementations, technology demonstrations, and industry engagement activities that promote the adoption of AI-enabled manufacturing solutions.

Qualifications:

U.S. Citizen Preferred

- Experience conducting research and measurement science in artificial intelligence, machine learning, data science, or related fields to address challenges in manufacturing, industrial systems, or other critical and emerging technology areas.
- Experience developing, evaluating, or implementing AI-related methodologies, frameworks, standards, benchmarks, or pilot projects.
- Demonstrated ability to transition research outcomes into practical applications that deliver measurable impact to industry or government stakeholders.
- Knowledge of the NIST AI Risk Management Framework (AI RMF), trustworthy AI principles, and related AI guidance documents.
- Strong analytical, technical, and communication skills, with the ability to collaborate effectively in multidisciplinary research environments.

Privacy Act Statement

Authority: 15 U.S.C. § 278g-1(e)(1) and (e)(3) and 15 U.S.C. § 272(b) and (c)

Purpose: The National Institute for Standards and Technology (NIST) hosts the [Professional Research Experience Program \(PREP\)](#) which is designed to provide valuable laboratory experience and financial assistance to undergraduates, post-bachelor's degree holders, graduate students, master's degree holders, postdocs, and faculty.

PREP is a 5-year cooperative agreement between NIST laboratories and participating PREP Universities to establish a collaborative research relationship between NIST and U.S. institutions of higher education in the following disciplines including (but may not be limited to) biochemistry, biological sciences, chemistry, computer science, engineering, electronics, materials science, mathematics, nanoscale science, neutron science, physical science, physics, and statistics. This collection of information is needed to facilitate administrative functions of the PREP Program.

Routine Uses: NIST will use the information collected to perform the requisite reviews of the applications to determine eligibility, and to meet programmatic requirements. Disclosure of this information is also subject to all the published routine uses as identified in the Privacy Act System of Records Notices: NIST-1: NIST Associates.

Disclosure: Furnishing this information is voluntary. When you submit the form, you are indicating your voluntary consent for NIST to use of the information you submit for the purpose stated.