

PREP Research Associate

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 – Agentic Artificial Intelligence (AI) Scientist

Position Description

The Agentic Artificial Intelligence (AI) Scientist will serve as a technical expert in the design, development, evaluation, and deployment of trustworthy AI agents and agentic AI systems. The successful candidate will contribute to cutting-edge research focused on supporting the development of methodologies, benchmarks, and best practices that enable the safe, secure, reliable, and effective use of AI agents across a range of application domains.

The position will support research activities related to AI agents, multi-agent systems, tool-using AI systems, human-AI collaboration, and emerging agentic AI architectures. The successful candidate will also contribute to the transition of research outcomes into practical solutions, guidance, and standards-related activities that advance trustworthy and responsible adoption of agentic AI technologies.

Key Responsibilities include, but are not limited to:

Technical Development and Implementation:

- Design, develop, and evaluate AI agents and agentic AI systems. Develop and implement architectures for autonomous and human-supervised AI agents, including multi-agent and tool-integrated systems.
- Build experimental platforms, prototypes, and proof-of-concept demonstrations to assess agentic AI capabilities and limitations.

Research and Technical Analysis:

- Conduct advanced research and technical analyses to develop and evaluate trustworthy approaches for agentic AI systems.
- Develop methodologies, benchmarks, testbeds, and measurement techniques to assess agent performance, reliability, safety, robustness, explainability, and human oversight.
- Investigate challenges associated with autonomous decision-making, agent coordination, tool use, planning, memory, and adaptive behavior.
- Evaluate risks and failure modes associated with agentic AI systems, including unintended actions, misuse, autonomy-related risks, and security vulnerabilities.

Technical Collaboration and Coordination:

- Collaborate with researchers and technical experts across NIST and external partner organizations to advance the science and practice of trustworthy agentic AI.
- Evaluate emerging agentic AI technologies and assess their applicability to multidisciplinary use cases.

Technology Transition and Stakeholder Engagement:

- Support the transition of research outcomes into practical tools, frameworks, guidance documents, and operational capabilities for government and industry stakeholders.
- Engage with external partners to identify challenges, opportunities, and emerging requirements for AI agents and autonomous systems.

Qualifications

U.S. Citizen Preferred

- Experience conducting research and measurement science in artificial intelligence, machine learning, large language models (LLMs), agentic AI, multi-agent systems, or related fields.
- Experience designing, developing, evaluating, or deploying AI agents, autonomous systems, retrieval-augmented generation (RAG) systems, tool-using AI systems, or LLM-based applications.
- Experience developing benchmarks, evaluation methodologies, testbeds, frameworks, or pilot implementations for AI systems.
- Demonstrated ability to transition research outcomes into practical applications that deliver measurable impact to industry or government stakeholders.
- Familiarity with AI orchestration frameworks, agent architectures, human-AI interaction, AI safety, AI security, or autonomous system evaluation.
- 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.