

Postdoctoral Fellow in AI4Energy

Scientific Foundation Models for Truth-Seeking, Discovery, and Innovation

Posted July 22, 2026

SALARY	START DATE	APPOINTMENT	APPLY BY
\$63,480 USD/year	October 1, 2026	12 months (renewable)	September 1, 2026

Ted Sargent and group at Northwestern University invite applications for an accomplished and intellectually ambitious Postdoctoral Fellow to join AI4Energy, our interdisciplinary program developing artificial intelligence systems that can reason about science, identify consequential research questions, and help transform promising ideas into validated discoveries.

The Fellow will develop and study scientific AI systems for energy and materials research. Potential directions include claim-level understanding of scientific literature; evidence-grounded hypothesis generation; multimodal reasoning across text, figures, tables, spectra, and experimental records; mechanistic reasoning; uncertainty-aware scientific question answering; and evaluation of whether AI-generated research directions are genuinely novel, feasible, and consequential. A complementary dimension of the position will examine the relationship between scientific knowledge and innovation, developing computational approaches to map research landscapes, identify overlooked connections, characterize emerging directions, and prioritize research opportunities across scientific portfolios.

This position is broader than any single funded project or experimental platform. The Fellow will be embedded in AI4Energy and the Sargent group while engaging with an interdisciplinary Northwestern community spanning artificial intelligence, computer science, data science, chemistry, engineering, complex systems, and the quantitative study of science and innovation.

RESPONSIBILITIES

- Develop scientific foundation models, agents, retrieval systems, knowledge representations, or reasoning frameworks for energy, chemistry, and materials science.
- Create methods for distinguishing observations, interpretations, hypotheses, and unsupported claims in scientific documents and experimental records.
- Build evidence- and provenance-aware systems that can identify supporting and conflicting results, characterize uncertainty, and reveal unresolved scientific questions.
- Develop multimodal reasoning capabilities that integrate scientific text with figures, tables, chemical structures, spectra, microscopy, and structured experimental data.
- Design rigorous benchmarks for scientific reasoning, hypothesis generation, literature-grounded ideation, mechanistic inference, and research prioritization.
- Evaluate scientific AI systems against expert judgment, published evidence, prospective experiments, and other meaningful measures of scientific value.

- Work closely with experimental researchers to translate model outputs into falsifiable hypotheses and to use experimental outcomes to diagnose and improve model reasoning.
- Mentor students and research assistants and contribute to interdisciplinary proposals and external funding opportunities.

QUALIFICATIONS

- Ph.D. in chemistry, computational chemistry, materials science and engineering, computer science, data science, or a related field, completed or expected before the start date.
- Demonstrated research experience in one or more of the following areas: large language models, foundation models, multimodal learning, AI agents, reasoning and planning, scientific machine learning, retrieval-augmented generation, knowledge graphs, information extraction, network science, bibliometrics, or computational studies of science and innovation.
- Strong scientific programming and model-development skills, ideally including Python and modern machine-learning frameworks.
- Experience building rigorous datasets and evaluation frameworks, with particular attention to factuality, provenance, uncertainty, reproducibility, and model failure modes.
- Interest in working directly with experimental scientists and learning the language, evidence standards, and constraints of energy, chemistry, or materials research.
- Excellent written and verbal communication skills and the ability to work across disciplinary boundaries.

HOW TO APPLY

Please include the following in your application package:

- A one-page research proposal responsive to the directions and criteria outlined in this job ad
- Your academic CV, including a section dedicated to your first-authored papers. This should include a list of three referees who are prepared to be consulted

Please use the [application link here](#).