



# Genesis Mission Models Team

The models team delivers a comprehensive portfolio of AI models, agents, and tools designed to accelerate discovery, strengthen national security, and achieve energy dominance. This includes Department of Energy and National Nuclear Security Administration (DOE and NNSA)-tuned frontier reasoning models, domain foundation models and other predictors, and mission-oriented agent frameworks that plan, reason, and act across high-performance computing, experimental facilities, and production environments.

## What the Team Delivers

### Agentic System and Tooling

The Genesis Mission provides a multi-agent framework that transforms models into active collaborators. Built atop the best frontier reasoning models from U.S. industry, these agents leverage multimodal scientific reasoning to orchestrate and operationalize workflows. This includes developing hypotheses, running simulations, executing experiments, and managing production.

### Domain Foundation Models, Surrogates, and Predictors

Built from world-class simulations and experimental data, specialized foundation models and AI surrogates are being adapted and trained for DOE science across materials, chemistry, physics, biology, controls, and trusted systems. These predictors guide experiments, optimize system design, and enable rapid exploration across physics and engineering domains.

### Model and Agent Repository

All models and agents are cataloged in a secure, searchable repository that includes model, agent, and data cards, and links to validated

frameworks, libraries, and tools.

This creates a discovery engine that ensures reusability, traceability, and interoperability across DOE and NNSA missions through an integrated discovery engine.

### Evaluation and Assurance

The Genesis Mission establishes clear, transparent methods to assess impact and productivity gains and evaluate the AI models that drive discovery across science and engineering. The models team creates open tools and benchmarks to test each model's robustness, generalizability, scientific validity, and safety.

### Execution Across DOE and NNSA

The models team brings together experts from all 17 National Laboratories into cross-disciplinary teams to develop a shared library of mission-ready models and high-assurance agents. This work is driven by a close partnership with the National Challenges team to deliver cross-cutting capabilities across the Genesis Mission space. Co-design with U.S. industry is a core tenet of the approach, building on industry's advancements in AI to develop unique, world-leading AI capabilities that further drive U.S. innovation.



The Genesis Mission a national initiative to build the world's most powerful scientific platform to accelerate discovery science, strengthen national security, and drive energy innovation.

For more information:

<https://energy.gov/genesis>



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