Draft Artificial Intelligence Strategic Plan Fiscal Years 2023-2027

ROP Bi-Monthly Meeting
July 27, 2022

Matt Dennis
Reactor Systems Engineer (Data Scientist)
Office of Nuclear Regulatory Research

Preparation, Awareness, and Readiness for the Future

- Developing the AI Strategic Plan to better position the agency in AI decisionmaking
- Engaged interdisciplinary team of AI subject matter experts across the agency
- Leveraging insights from the 2021 Data Science and AI Regulatory Applications Workshops*
- AI Strategic Plan to be finalized after receipt and consideration of comments from the public and feedback from the Advisory Committee on Reactor Safeguards

*See NRC public Web site at https://www.nrc.gov/public-involve/conference-symposia/data-science-ai-reg-workshops.html

Notional AI and Autonomy Levels in Commercial Nuclear Activities

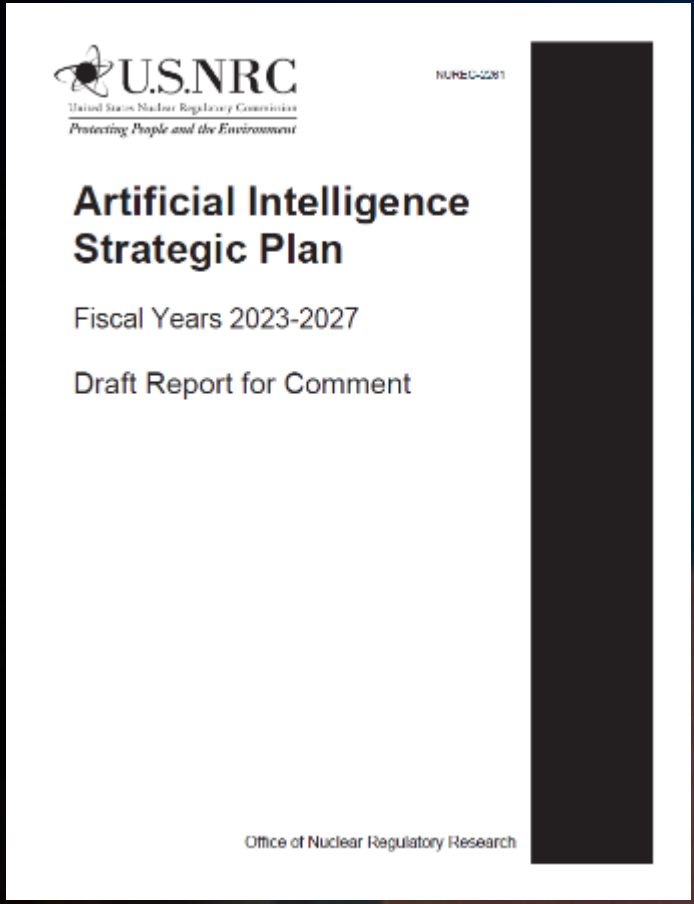
Human Involvement

Level	Notional AI and Autonomy Levels	Potential Uses of AI and Autonomy in Commercial Nuclear Activities
Level 1	**Insight** Human decisionmaking assisted by a machine	AI integration in systems is used for optimization, operational guidance, or business process automation that would not affect plant safety/security and control
Level 2	**Collaboration** Human decisionmaking augmented by a machine	AI integration in systems where algorithms make recommendations that could affect plant safety/security and control are vetted and carried out by a human decisionmaker
Level 3	**Operation** Machine decisionmaking supervised by a human	AI and autonomy integration in systems where algorithms make decisions and conduct operations with human oversight that could affect plant safety/security and control
Level 4	**Fully Autonomous** Machine decisionmaking with no human intervention	Fully autonomous AI in systems where the algorithm is responsible for operation, control, and intelligent adaptation without reliance on human intervention or oversight that could affect plant safety/security and control

Machine Independence

Common Understanding of the Level Key for Regulatory Readiness

ARTIFICIAL INTELLIGENCE STRATEGIC PLAN GOALS AND NEXT STEPS


U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NUREG-2261

Artificial Intelligence Strategic Plan

Fiscal Years 2023-2027

Draft Report for Comment

Office of Nuclear Regulatory Research

The AI Strategic Plan consists of five strategic goals:

- **Goal 1: Ensure NRC Readiness for Regulatory Decisionmaking**
- **Goal 2: Establish an Organizational Framework to Review AI Applications**
- **Goal 3: Strengthen and Expand AI Partnerships**
- **Goal 4: Cultivate an AI-Proficient Workforce**
- **Goal 5: Pursue Use Cases to Build an AI Foundation Across the NRC**

Timeframe	Milestone
July 5, 2022	Issued Draft AI Strategic Plan for public comment
August 3, 2022	Host AI Strategic Plan public meeting
November 2022	Joint Subcommittee Advisory Committee on Reactor Safeguards meeting on AI
Spring 2023	Issue Final AI Strategic Plan

Maintaining public engagement and awareness via our NRC AI Public Website

Contact Us

- **Matt Dennis**
  Reactor Systems Engineer (Data Scientist)
  Office of Nuclear Regulatory Research
  matthew.dennis@nrc.gov

- **Luis Betancourt, P.E.**
  Chief, Accident Analysis Branch
  Office of Nuclear Regulatory Research
  luis.betancourt@nrc.gov