

# PUBLIC SUBMISSION

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**Comment On:** NSF-2025-OGC-0001-0001  
Request for Information: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

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## General Comment

comprehensive response to the 2025 National AI R&D Strategic Plan RFI, focusing on priorities like foundational AI research, national security applications, and In attached document we discuss brief idea on scientific discovery acceleration. Plan with feedback integration mechanisms to create adaptive research programs. In addition scope to incorporate critical domains of space systems, advanced robotics, and enhanced cybersecurity, ensuring cross-domain integration for maintaining U.S. technological leadership.

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## Attachments

mk-inputs

## **PRIORITY:**

### **• Foundational AI Algorithms and Architectures**

- Focus on next-generation AI systems beyond current deep learning paradigms
- Develop new mathematical foundations for more robust and explainable AI systems
- Research novel computing paradigms that can provide order-of-magnitude improvements in efficiency

### **• National Security and Critical Infrastructure**

- Prioritize AI research specifically for defense applications and critical infrastructure protection
- Develop AI systems resistant to adversarial attacks and capable of operating in contested environments
- Research AI applications for cybersecurity that exceed commercial capabilities

### **• Scientific Discovery Acceleration**

- Fund AI research aimed at fundamental scientific breakthroughs in physics, materials science, medicine, and climate modeling
- Create specialized AI architectures optimized for scientific computing and simulation

### **• Agentic and Embodied AI**

- Invest in autonomous systems capable of complex reasoning and adaptation in dynamic environments
- Research physically embodied AI with strategic competitiveness implications for manufacturing and logistics

### **• American Workforce Enhancement**

- Develop AI systems that augment human capabilities rather than replace workers
- Research AI-powered educational systems tailored to upskill the American workforce

## **IMPLEMENTATION:**

### **• Public-Private Research Partnerships**

- Establish new mechanisms for government-industry-academia collaboration that protect intellectual property while advancing national interests
- Create specialized research centers focusing on high-risk, high-reward AI research

### **• Infrastructure Development**

- Invest in shared computing resources specifically designed for advanced AI research

- Develop standardized benchmarks and evaluation frameworks for emerging AI capabilities
- **Regulatory Alignment**
  - Ensure R&D priorities align with a regulatory framework that promotes innovation while addressing security concerns
  - Research AI standards that can be globally competitive while protecting American values and interests

## **FEED-BACK :**

- **Continuous Assessment Framework**
  - Implement a structured quarterly review process for all federally funded AI R&D initiatives
  - Develop metrics-based evaluation systems that track progress against strategic objectives
  - Create rapid-response funding mechanisms to quickly pivot resources based on breakthrough developments
- **Multi-stakeholder Feedback Channels**
  - Establish a formal AI R&D Advisory Council with rotating industry, academic, and civil society representation
  - Create secure channels for national security stakeholders to provide classified feedback on AI capabilities and threats
  - Implement regional listening sessions to gather input from diverse communities affected by AI development
- **Adaptive Research Agenda**
  - Design research programs with built-in flexibility to incorporate emerging priorities
  - Allocate 15-20% of research funding for rapid response to new developments and breakthrough opportunities
  - Develop mechanisms to quickly scale successful pilot programs to full implementation
- **Real-world Testing Environments**
  - Create controlled sandboxes for testing AI applications in simulated real-world conditions
  - Establish partnerships with state and local governments for deploying and evaluating AI systems in public sector applications
  - Develop feedback protocols to quickly identify and address unintended consequences of AI deployments

**FIELDS:**

Strategic Plan to include robust investments in three critical technology domains: space systems (autonomous spacecraft, space domain awareness), advanced robotics (dexterous manipulation, field robotics for extreme environments), and enhanced cybersecurity (AI-powered threat intelligence, secure AI development techniques). These additions create a more comprehensive framework that addresses cross-domain integration through unified testing environments and resilient multi-domain systems, strengthening areas where U.S. leadership faces significant competition and where national security interests require sustained federal investment beyond commercial incentives.