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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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Comment on FR Doc # 2025-07332

Submitter Information

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General Comment

I am submitting a recommendation in response to the Request for Information titled “Development of a 2025 National Artificial Intelligence (AI) Research and Development Strategic Plan” (Document Number: 2025-07332, Docket ID No. NSF-2025-OGC-0001).

My submission focuses on the importance of scalable, privacy-preserving governance frameworks for collaborative AI in healthcare, including the proposed Federated Governance Architecture (FGA). This framework directly addresses challenges in secure data collaboration, regulatory compliance, and model interoperability across institutions.

Please find my full response attached as a PDF document titled:
FGA_Recommendation_US_AI_Strategy_2025v2.pdf

Respectfully,
Roberto Williams Candelaria Bernardes Batista, M.Sc.

Attachments

FGA_Recommendation_US_AI_Strategy_2025v2

Recommendation for the 2025 National Artificial Intelligence (AI) R&D Strategic Plan

Docket ID No. NSF-2025-OGC-0001

Executive Summary

To foster innovation in privacy-preserving healthcare AI and enable cross-institutional collaboration, I propose the inclusion of the Federated Governance Architecture (FGA) as a national framework. The FGA, detailed in my published research (*Batista et al., 2025*), is a comprehensive model that overcomes the primary challenges of deploying federated learning (FL) in regulated healthcare environments.

Recommendation Summary

Objective: Establish a federally supported Federated Governance Entity (FGE) framework to coordinate, audit, and secure collaborative machine learning across U.S. healthcare institutions—while ensuring compliance with HIPAA, CMIA, and future AI regulations.

National AI Priority Areas Addressed

- Trustworthy AI
- Health and Biomedicine
- Privacy-Preserving Machine Learning
- AI Infrastructure and Benchmarking
- Workforce Training and Governance

Key Components of the Proposed Architecture

1. Federated Governance Entity (FGE): Acts as a neutral fiduciary agent to enforce compliance, coordinate secure communication, and promote transparency through auditable logs.
2. Data Harmonization Layer: Supports preprocessing pipelines using FHIR, OMOP, and DICOM standards, leveraging LLMs for mapping.
3. Security Protocols: Implements Differential Privacy, Secure Multi-Party Computation, Homomorphic Encryption, and ephemeral containers to guard against adversarial attacks.
4. Scalability Guidance: A replicable model to scale FL across government and private health systems.
5. Clinical Feedback Loop: Integrates practitioner-in-the-loop feedback to continuously refine model relevance and safety.

Suggested Strategic Actions

1. Fund national pilots implementing the FGA model for multi-hospital AI collaboration.
2. Establish a federal task force to define FL standards using FGA as a blueprint.
3. Incentivize open documentation of harmonization pipelines to promote trust and reproducibility.
4. Include FGA-aligned frameworks in NSF, NIH, and DoD AI research funding calls.

Additional Context and Considerations

As an illustrative example, a regional network of hospitals in the Midwest could deploy FGA to collaboratively improve ICU triage models. By using local EHR data processed through harmonized pipelines under FGA oversight, these institutions could securely train and audit a global model without exposing any protected health information—while still benefiting from collective data patterns that improve care outcomes.

While Federated Governance Architecture (FGA) offers robust solutions for secure and privacy-preserving collaboration, it is important to acknowledge potential implementation challenges, such as the need for significant initial coordination, infrastructure investment, and cultural shifts in data sharing practices. These can be addressed through phased deployments, federal seed funding, and standardized protocols to ensure long-term interoperability and institutional trust.

This recommendation is provided in response to the Request for Information published in the Federal Register on April 29, 2025 (Document Number 2025-07332), as encourages public input on strategic AI infrastructure, critical public sector applications, and collaborative mechanisms to address domains like healthcare, national security, and workforce productivity.

Final Note

The FGA advances U.S. goals in secure, ethical, and collaborative AI deployment. I welcome the opportunity to participate in shaping standards and contributing to pilot implementations aligned with this vision.

Declaration for Submission

This document is approved for public dissemination. The document contains no business-proprietary or confidential information. Document contents may be reused by the government in developing the AI R&D Strategic Plan and associated documents without attribution.

References

Batista, R. W., Integlia, R., Rodgers, J. L., Rodriguez, B. G., Batista, L. S., Silva, L. S., Chintalapudi, J., & Gerken, S. (2025). Federated Governance Architecture for Collaborative Healthcare AI. In Proceedings of the IEEE AIRC 2025.

Respectfully submitted,

Roberto Williams Candelaria Bernardes Batista, M.Sc.