

Federal Register Notice: 89 FR 51554, [Federal Register :: Networking and Information Technology Research and Development Request for Information on Digital Twins Research and Development](#), June 18, 2024.

Request for Information on the National Digital Twins R&D Strategic Plan

UC Davis

DISCLAIMER: Please note that the RFI public responses received and posted do not represent the views or opinions of the U.S. Government. We bear no responsibility for the accuracy, legality, or content of the responses and external links included in this document.



July 26, 2024

Subject: Networking and Information Technology Research and Development Request for Information on Digital Twins Research and Development

To Whom It May Concern:

UC Davis is pleased to provide a response to this RFI from the Networking and Information Technology Research and Development National Coordination Office regarding the creation of a National Digital Twins R&D Strategic Plan. Enclosed are responses from Drs. Samuel T. King, Pantelis Loupos, and Joseph Teran. Further communications regarding the content of this RFI response may be directed to [REDACTED] and [REDACTED] respectively.

On the Trustworthiness topic of interest, one specific application of relevance to digital twins approaches is the development of automated insulin delivery systems. Information generated from software modeling human metabolism is used to mediate the injection of insulin, which has great implications for human health and safety if the process is not secured. In use cases such as this one, trustworthiness must be a key consideration in the future construction of healthcare systems.

Regarding the Ecosystem topic of interest, there is an interest in characterizing emergent behavior in network formation and dynamics. Digital twins approaches may be used to simulate and observe emergent behaviors in different types of networks, such as social, transportation, or neural networks. Furthermore, these approaches may lend themselves to enabling the analysis of how changes in individual behaviors or connections influence overall network dynamics, helping predict and manage subsequent large-scale network transformations.

Additionally, in relation to the Artificial Intelligence topic area, the emerging field of digital humans warrants future investigation and consideration.

The UC Davis Office of Research appreciates the opportunity to provide input pertinent to NITRD's directives and looks forward to future collaboration.

[REDACTED]
[REDACTED]
[REDACTED]