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Docket: NRC-2021-0048
Role of Artificial Intelligence Tools in Nuclear Plant Operations

Comment On: NRC-2021-0048-0001
Role of Artificial Intelligence Tools in U.S. Commercial Nuclear Power Operations

Document: NRC-2021-0048-DRAFT-0003
Comment on FR Doc # 2021-08177

Submitter Information

Email: tsosorio@epri.com
Organization: Electric Power Research Institute

General Comment

Please see attached file.

Attachments

05 14 2021_Letter to NRC Docket ID NRC-2021-0048 (H. Feldman)

DR. RITA BARANWAL
Vice President, Nuclear
and Chief Nuclear Officer

May 14, 2021

ATTN: Program Management, Announcements and Editing Staff
Office of Administration
Mail Stop: TWFN-7-A6M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Docket ID NRC-2021-0048, Request for Comments on the Role of Artificial Intelligence Tools in U.S. Commercial Nuclear Power Operations

Dear Sir or Madam:

As an independent, non-profit organization for the benefit of the public, the Electric Power Research Institute (EPRI) appreciates the opportunity to provide comments on the Role of Artificial Intelligence Tools in U.S. Commercial Nuclear Power Operations.

We believe the following public documents, available at www.epri.com, provide relevant input regarding some of the questions in the requested information in the subject Docket ID NRC-2021-0048. Specifically, documents #1 and #2 provide insights into the areas where commercial nuclear power operations can incorporate Artificial Intelligence (AI) and Machine Learning (ML) approaches and the potential benefits they would bring. Documents #3 and #4 provide examples of the application of two specific techniques to nuclear power operations, discussing their benefits as well as some of the challenges and necessary steps towards implementation.

1. **Quick Insight Brief: Leveraging Artificial Intelligence for the Nuclear Energy Sector** (3002021067)
   EPRI is leading initiatives to collect and curate data in the nuclear industry and to develop artificial intelligence (AI) tools specific to the sector. This Quick Insight brief discusses areas where AI can impact the nuclear industry and provides information about current EPRI research activities on AI that pertain to the sector.
   https://www.epri.com/research/products/000000003002021067

2. **Quick Insight Brief: Leveraging Artificial Intelligence for Nondestructive Evaluation** (3002021074)
   With the power to substantially transform nearly every form of industry—just like electricity did in the last century—artificial intelligence (AI) has been branded as "the new electricity." Its impact on nondestructive evaluation (NDE) is a case in point. The purpose of this Quick Insight brief is to discuss areas where AI can impact NDE in the nuclear sector and inform the industry about current EPRI research activities on AI for NDE.
   https://www.epri.com/research/products/000000003002021074

3. **Quick Insight — Power Industry Dictionary for Text-Mining and Natural Language Processing Application: A Proof of Concept** (3002019609)
   Is an industry-specific dictionary needed? Can an industry-specific dictionary improve the performance of text-mining and natural language processing (NLP) algorithms? Can a workflow process be created for building topic-specific dictionaries that can be utilized as a starting point to build a new dictionary, specific to the electric power industry?
   https://www.epri.com/research/products/000000003002019609

4. **Automated Analysis of Remote Visual Inspection of Containment Buildings** (3002018419)
    This technical brief summarizes the progress to date on the efforts to develop machine vision models to automatically detect damage in concrete structures. For example, it is envisioned that such tools would enable utilities to maximize the benefits found in deploying unmanned aerial systems for remote visual inspection of containment buildings. Although not ready for deployment, the results of the initial model on a limited dataset show that this approach is feasible and can provide value to the industry.
    https://www.epri.com/research/products/000000003002018419

Please contact me at 704-595-2004 if you have any questions.

Sincerely,

[signature]

RB/hf/cbs