



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Training Workshop on Innovations in Data Analysis and Retrieval for Nuclear Decommissioning

IAEA Headquarters, Vienna, Austria

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Information Sheet

Introduction

Over the past decades, a large collection of knowledge from nuclear decommissioning projects has been accumulated. Access to this knowledge plays an essential role in the effective implementation of decommissioning activities. Lessons learned, good practices, innovative technologies, and various methodologies in nuclear decommissioning and waste management are recorded in multiple formats. Advancements in technology are driving significant progress and have become enablers for efficient nuclear decommissioning. The unprecedented growth of artificial intelligence (AI) can accelerate and enhance access to dispersed knowledge and data. Advances in semantic technologies, which facilitate machine understanding of data, have produced significant improvements in data analysis and retrieval. Semantic technology differs from other data technologies by focusing on meaning rather than structure.

The large volume of data relevant to nuclear decommissioning further requires analysis, methods such as machine learning, a subset of artificial intelligence, offers algorithms and techniques for detecting patterns in datasets, that can support decision-making, predict future actions, while reduce uncertainty. Artificial intelligence has the potential to fundamentally improve knowledge management in decommissioning and to effectively support decommissioning projects. However, limited practical applications and slowly developing trust in these tools have slowed industrial-scale deployment in nuclear decommissioning.

Uncovering the full value and utility of artificial intelligence for decommissioning requires a better understanding of its functionalities, scalability, and limitations. Building trust in the use of this emerging technology is crucial for wider adoption. The purpose of this workshop is to increase understanding and knowledge of artificial intelligence technologies - such as large language models, machine learning and other types of AI applications – for data analysis and retrieval in the field of nuclear decommissioning.

Objectives

The overall objective of this training workshop is to increase understanding and knowledge on innovation technologies adoption, such as natural language processing (NLP), large language models (LLMs), machine learning (ML) and other types of AI applications in data analysis, information gathering and knowledge retrieval in the field of nuclear decommissioning.

The purpose of this event is to discuss current practices in knowledge management and to work together on deeper understanding how to apply AI tools to data analysis and knowledge retrieval.

Participants of this training workshop will have the opportunity to explore and discuss with experts the following topics:

- Ontology based systems and their applications in practice
- Critical knowledge in nuclear decommissioning
- Applications of AI tools in practice
- Prompt engineering fundamentals
- Retrieval augmented generation (RAG) basics
- Building a simple QA Bot
- Evaluation, verification and mitigating hallucinations

Target Audience

The event targets managers, specialists, engineers, knowledge management professionals, experts in emerging technologies, R&D and innovation specialists, data scientists, project leads, regulatory bodies, and decision-makers involved in nuclear decommissioning projects and programmes.

Participants are encouraged to have knowledge of the fundamental principles of knowledge management and an understanding of basic concepts and terminology related to nuclear decommissioning. A foundational grasp of artificial intelligence concepts, including a general awareness of machine learning, natural language processing, and applications of large language models—their functions, strengths, and limitations—will be beneficial. Familiarity with digital tools such as web-based applications, document repositories, and collaboration platforms is recommended. While experience with command-line interfaces or programming is optional, it may provide added value during hands-on sessions.

Participants are expected to bring their own laptops to the training workshop and have them ready for installing simple, free apps that will be used during the exercises.

Working Language(s)

English.

Anticipated Outcomes

The following are the anticipated outcomes of the meeting:

- An enhanced understanding of the semantic technology, machine learning, large language models, generative AI concepts and their relevance to nuclear decommissioning
- Demonstrated familiarity with ontology-based systems and how ontologies can support structuring critical knowledge for nuclear decommissioning
- Basic working knowledge of retrieval augmented generation (RAG) and when to apply it for large-document or multi-source retrieval.
- Awareness of evaluation methods, verification procedures and strategies to mitigate hallucinations and reduce risk in safety-critical contexts

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **5 August 2026**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
 - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
 - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event under the ‘My Eligible Events’ tab;
 - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
 - If applicable, indicate whether a paper is being submitted and complete the relevant information;
 - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
 - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
 - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **5 August 2026**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made, together with the submission of the application, by **5 August 2026**.

Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

www.iaea.org/events.

Meeting participants are requested to arrive at Checkpoint 1 / Gate 1 of the VIC one hour before the start of the meeting on the first day, in order to allow sufficient time for issuing grounds passes, which are necessary for official visitors to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:

<https://www.iaea.org/events/evt2503707>