Announcement of the workshop on "Artificial Intelligence and Radiation Protection"

PIANOFORTE is organizing the workshop on **"Artificial Intelligence and Radiation Protection"** aiming at presenting and discussing current and future artificial intelligence implementations in various sectors of radiation protection, that include medical applications, radiation dosimetry, radiobiology, radioecology, emergency preparedness, response and recovery.

The workshop objectives are to:

- delineate the relevance and applicability of artificial intelligence and big data technologies in radiation protection domains and identify the thematic areas that appear to be more susceptible to artificial intelligence implementations,
- identify and develop links with scientific communities specializing on artificial intelligence and big data technologies,
- promote the artificial intelligence uptake and application in the 3rd PIANOFORTE open call

The workshop will be organized by NCSR "Demokritos" on its premises in Agia Paraskevi, Attica, Greece, on 18 and 19 April 2024 comprising thematic presentations followed by discussion sessions that include:

- the state-of-the-art of artificial intelligence applications in radiation protection
- deliberations on future research directions that will be considered in the formulation of the topics to be funded under the 3rd PIANOFORTE open call

PRELIMINARY PROGRAM

Workshop on "Artificial Intelligence and Radiation Protection"

18-19 April 2024, NCSR "Demokritos", Agia Paraskevi, Attica, Greece

18 April 2024

08:30-09:00: Registration

09:00-10:40

- Introduction and goals of the workshop
- General talk on artificial intelligence: TBD
- Radiation dosimetry:
    - Filip Vanhavere (SCK•CEN, Belgium), General talk on AI in dosimetry, literature review
    - Hans Rabus (PTB, Germany) "AI is useful for dosimetry, but is it trustworthy?"
    - Julien Bert (INSERM, France) "AI-driven dose optimization in image-guided therapy"

10:40–11:10 Coffee Break

11:10–12:35

- Emergency preparedness and response:
    - Spyros Andronopoulos (NCSRD, Greece), General talk on AI in emergency preparedness and response, literature review
    - Anna Wawrzyńczak-Szaban (NCBJ, Poland), "Modelling atmospheric contamination using a neural network and relevant literature review"
    - Sadeeb Simon Ottenburger (KIT, Germany) "Identification of short-term optimized radiation protection measures using AI"
    - Omid Azimzadeh (BfS, Germany), "How conversational AI will change the way we talk about risks"

12:35–14:00 Lunch Break

14:00–15:45

- Radioecology:
    - Ivica Prlić (IMROH, Croatia), "AI possibilities in environmental radiation protection"
    - Olivier Armant (IRSN, France), "Use of AI for modeling the ecological effects of Chernobyl accident on frog populations, and transfer prediction of radionuclides in the environment"
- Radiobiology:
    - Mohamed Amine Benadjaoud (IRSN, France), Introduction / overview / literature

- Mohamed Amine Benadjaoud (IRSN, France) “Artificial intelligence for automated chromosomal aberration detection in cytogenetic imaging”
- Charles Kervrann (INRIA, France), “Biological imaging and computational microscopy”

15:45–16:15 Coffee Break

16:15–17:15

- Medical applications:
  - Christoph Hoeschen (OVGU, Germany) or John Damilakis (UoC, Greece), Introduction/overview/literature
  - John Damilakis (University of Crete, Greece), “AI in medical imaging and corresponding dosimetry”
  - Lidia Strigari, (University of Bologna, Italy), “AI in radiation therapy and hybrid imaging”

19 April 2024

09:00–11:00

- Presentation by PIANOFORTE selected projects that already incorporate artificial intelligence and/or machine learning
  a. VERIFIED, Luana Nascimento, SCK•CEN, Belgium
  b. IMAGEOMICS, Melanie Fachet, OVGU, Germany
- Omid Azimzadeh (BfS, Germany), PIANOFORTE Work Package 5 activities related to artificial intelligence
- Susan Molyneux-Hodgson (SHARE Platform, University of Exeter), Deborah Oughton (NMBU, Norway), Ethical considerations of artificial intelligence:
  - Presentation of the PIANOFORTE deliverable “D2.11 Report on ethical aspects of AI in radiation protection”
  - Discussion on ethical consideration issues

11:00–11:30 Coffee Break

11:30–13:00

- Discussion on the current applicability of artificial intelligence in radiation protection
- Discussion on how to increase the use of artificial intelligence in radiation protection
- Discussion on how to introduce artificial intelligence in the 3rd PIANOFORTE open call

Registration to the event via: https://form.jotform.com/240533478842057

Registration will be open until 27/3/2024.

Workshop participation is free-of-charge.