



ROBOTICS

Modern Tools for Nuclear Energy

I am extremely happy to write this foreword for the thematic issue of BARC Newsletter, on Artificial Intelligence (AI) and Robotics. In recent times, the subjects of AI, Machine Learning (ML), Deep Learning, Big Data Science, Automation & Robotics have gained global importance. The recommendations of NITI Aayog, Govt. of India, also provide thrust to carry out extensive research work in these areas of Science & Technology, for the benefit of mankind. As India celebrated the completion of 75 years of Independence by launching the nation-wide Azadi Ka Amrit Mahotsav campaign, BARC organized a gamut of activities under this to propagate the country's multi-faceted achievements in the domain of science and technology.

A series of lectures on the theme AI & Robotics were delivered by eminent speakers from the field, on the occasion of National Science Day-2022 (NSD '22), on 28th February, 2022 in BARC, to mark the invention of the Raman Effect. These lectures in their true sense, further propagated the on-going research work in BARC, related to this theme. On 11th May, 2022, on the occasion of National Technology Day-2022 (NTD '22), BARC conducted various programs related to AI & Robotics, for the benefit of secondary school and junior college students of Mumbai. More than 300 students participated in the program and they showed very high interest and enthusiasm in these subjects. The centre of attraction was the exhibition and demonstration of AI & Robotic systems developed in BARC.

Subsequently, BARC planned to bring-out a thematic issue of BARC Newsletter on AI & Robotics covering the latest developments carried out in BARC, to demonstrate the capabilities of BARC in pursuit of the mission 'Atmanirbhar Bharat' (indigenization). It goes without saying that BARC is already committed to build the high performance scientific computing platform for facilitating AI/ML related activities. In view of the mandate of the Department of Atomic Energy (DAE), I am of firm belief that the research work being pursued in the fields of Deep learning, ML, AI, Automation & Robotics would certainly resolve many of the problems associated with Nuclear Power Plants, Back-End Technologies, Strategic areas, in addition to the Healthcare and Agriculture sectors.

I am grateful to Shri K. N. Vyas, Chairman, AEC & Secretary, DAE and Dr A. K. Mohanty, Director, BARC for their keen interest in the field of AI & Robotics and their kind support for the research activities in these areas of Science & Technology. I am sure that the readers would enjoy the range of articles on AI & Robotics chronicled in this issue.

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