International Journal of Engineering Education Vol. 36, No. 6, pp. 1739, 2020
Printed in Great Britain
0949-149X/91 $3.00+0.00

Guest Editorial

Artificial Intelligence Aided Engineering Education

Artificial intelligence (AI) is already helping several types of machines and engineering systems to maximize the chances of successfully achieving their goals. This has led in the last decade to fundamental transformations in a wide set of industrial sectors and economic activities and played a fundamental role in the birth of innovative architypes, such as ''Industry 4.0'', first in Germany and then spread throughout the whole European Union, and of ''Society 5.0'' in Japan, among other transformations with global impact.

Engineering science, technology and research benefit from artificial intelligence, as can be clearly understood from recent innovations linked to: autonomous cars, collaborative robots, unmanned aircraft systems, self-supervised manufacturing systems, management of big amounts of data, optimization of machines and even design of new materials. Consequently, engineering educators should be able to make students aware of the potentials of artificial intelligence, teach them the necessary fundamentals of this field of study and guide them through the application of these algorithms and technologies to the development of real engineering projects, as necessary aspects in modern engineering programs of study.

However, the more relevant impact of artificial intelligence in engineering education goes beyond the application of a set of novel resources to solving specific engineering problems: in fact, the concept of ''artificial intelligence-aided engineering education'' refers to taking advantage of artificial intelligence techniques and resources for improving the whole teaching-learning process in higher education, especially in connection with scientific-technological studies. Implications involve all areas of educational practice, from planning and organization of teaching programs and courses, through implementation and tracing, towards final assessment of learning outcomes. Thanks to artificial intelligence-aided engineering education we may well be living in the dawn of a new era of more effective, efficient, accessible, and inclusive technical universities.

To search, generate, gather, and provide ideas for optimally deploying the potentials of this new set of algorithms and technologies, we proposed the present special issue on Artificial Intelligence-Aided Engineering Education. Papers in the special issue provide an overview of timely aspects, including: teaching-learning experiences involving AI, AI as a supporting tool for engineering education and curricular planning, AI for solving organizational challenges and bureaucratic burdens at universities, and AI for empowering educators, to cite a few.

The Guest Editors are deeply grateful to the authors for their support to this special issue and appreciate the kind consideration and advice of Chief Editor Ahmad Ibrahim. We truly hope that the result will be according to authors' expectations and of interest for colleagues and readers of the International Journal of Engineering Education.

Prof. José Luis Martín Núñez & Prof. Andrés Díaz Lantada
August 2020