

Editorial

Special Issue “Industry 5.0: The Prelude to the Sixth Industrial Revolution”

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1. Introduction

While a significant number of companies around the world are still trying to adapt to Industry 4.0, the discussion about Industry 5.0 has already begun.

In 2018, Raconteur spoke to Phil Cartwright, the executive director of the UK’s Centre for Modelling and Simulation, about this topic. In the interview, Cartwright introduced the characteristics of Industry 5.0, application cases, and predictions for the man–machine relationship in the era of Industry 5.0.

In his view, the biggest feature of Industry 5.0 is “Personalization”; that is, the design and production of various sensor data are directly linked to provide users with personalized products in real time. He also predicted that the high degree of automation that Industry 5.0 will bring would not reduce human value, but rather increase it through human–machine collaboration.

Frankly speaking, it is not difficult to find some initial definitions of the Industry 5.0 concept on the Internet.

In 2018, when the Industry 5.0 concept was proposed, Özdemir and Hekim [1] wrote a paper reporting the birth of Industry 5.0; they expressed their opinion that Industry 4.0 is a high-tech strategy to automate manufacturing using the Internet of Things to create smart factories, and this extreme automation still has many drawbacks. Thus, they propose Industry 5.0, which democratizes the knowledge co-production of big data based on new concepts of symmetric innovation. Their proposed Industry 5.0 leverages the Internet of Things, but unlike previous automation systems, the innovation ecosystem design has a three-dimensional (3D) symmetry. In addition, in a research letter of A. Haleem and M. Javaid [2], the application of Industry 5.0 in orthopedics was briefly discussed and, since then, the concept of Industry 5.0 has become more widespread.

In 2019, Doyle-Kent and Kopacek [3] saw Industry 5.0 as a lifeline to manufacturing. Recalling the benefits that Industry 4.0 has brought to society, they believed that under the background of Industry 5.0, there may be a paradigm change in the development mode of industry. In the same year (2019), Nahavandi [4] argued that the compelling need to increase productivity without removing human workers from manufacturing is posing serious challenges to the global economy. To address these challenges, they introduced the concept of Industry 5.0, which treats the human–machine relationship as cooperative rather than competitive.

Moreover, in 2019, Demir, Döven and Sezen [5] argued that the previous discussion of Industry 5.0 has not focused on the organizational issues arising from human–computer collaboration; at the same time, they discussed possible issues related to human–computer collaboration from the organizational and employee perspectives. Their research will no doubt be the focus of many upcoming research on organizational robots.



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After 2020, the discussion of Industry 5.0 reached an unprecedented climax:

Aslam et al. [6] thought that it is an era of Industry 5.0, but also an era of Internet of Things; IoT will thrive in the context of Industry 5.0. Longo, Padovano and Umbrello [7] considered Industry 5.0 to be a transitional and enhanced version of Industry 4.0, and ElFar et al. [8] were more likely to emphasize the concept of Industry 5.0 sustainability in production and manufacturing in 2021.

In addition, the comparison between Society 5.0 and Industry 5.0 has also become a potentially hot topic.

Many researchers [9–12] have conducted relevant discussions on Industry 4.0 and Society 5.0, and most researchers believe that the feature of Society 5.0 is based on the whole economy and society. It should not only improve the productivity of industry, but also improve the convenience of life.

In the concept of Society 5.0, it is the direction of efforts to solve social issues, such as the aging of young children, environment and energy, etc., which are put into the field of vision. Obviously, compared to the concept of Industry 4.0, the scope of Society 5.0 is much broader. With the introduction of the concept of Industry 5.0 in Europe, although the focus of Industry 5.0 is still industrial, it is difficult to avoid being compared with Society 5.0. Thus, the comparison between Society 5.0 and Industry 5.0 is bound to cause an uproar.

2. The Aim and Scope of the Special Issue

Over time, the concept of Industry 5.0 has penetrated all walks of life, different people have different ideas about the concept of Industry 5.0. Therefore, this Special Issue focuses on the future development of all industry aspects and its adaptability to society.

We look forward to receiving more of your views about Industry 5.0, and we hope this Special Issue will receive your attention. If you have any particular ideas or opinions, please feel free to contribute to this Special Issue; we accept any form of contributions, such as research article, literature review, opinion paper, technical note, etc., and we hope that more and more scholars and researchers will be interested and engage in the research of this field.

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