

Industry 4.0 and Beyond: Challenges and Opportunities

László Monostori

Institute for Computer Science and Control,
Eötvös Loránd Research Network
Budapest, Hungary

laszlo.monostori@sztaki.hu

Cyber-Physical Systems which are systems of collaborating computational entities which are in intensive connection with the surrounding physical world and its on-going processes, providing and using, at the same time, data-accessing and data-processing services available on the internet. *Cyber-Physical Production Systems* relying on the newest and foreseeable further developments of computer science, information and communication technologies, and of manufacturing science and technology, form the basics of the 4th Industrial Revolution, frequently noted as *Industry 4.0*.

In the presentation expectations and related new R&D challenges will be demonstrated. Some activities run in Hungary, partly in the frameworks of large-scale international cooperation will be introduced, including biologicalisation, i.e. the biological transformation in manufacturing.

László Monostori, electrical engineer, director of the Institute for Computer Science and Control (SZTAKI), Eötvös Loránd Research Network (ELKH), and professor emeritus at the Budapest University of Technology and Economics (BME).

He is former President of The International Academy for Production Engineering (CIRP); Past Chairman of the Coordinating Committee on Manufacturing and Logistics Systems, International Federation of Automatic Control (IFAC); Former Chairman of the Technical Committee on Technical Diagnostics, International Measurement Confederation (IMEKO); member of the European Academy for Industrial Management (AIM) and of the International Academy of Engineering and Technology (AET).

He is founding Editor-in-Chief of the CIRP Journal of Manufacturing Science and Technology and member of the editorial boards of numerous international scientific periodicals. For his research achievements published in 440+ publications resulted in a significant number of citations (Google Scholar: 10600+, Scopus: 5700+, WoS: 3500+) and for his development activities – among others – the Dennis Gabor Prize, the Civil Decoration of the Knight's Cross Order of Merit of The Republic of Hungary and the Széchenyi Prize were given to him.

Prof. Monostori is member of the Hungarian Academy of Sciences, member of the Hungarian Academy of Engineering, member of the National Academy of Science and Engineering (Deutsche Akademie der Technikwissenschaften, acatech), and foreign member of the Royal Flemish Academy of Belgium for Science and the Arts (KVAB). He acts also as Senior Advisor of the Fraunhofer Gesellschaft, Germany.

