Editors's Introduction to the Special Issue on "100 Years of Alan Turing and 20 Years of SLAIS"

Alan Mathison Turing (1912 - 1954) was an English mathematician, logician, cryptanalyst, and computer scientist. He was highly influential in the development of computer science, providing a formalisation of the concepts of "algorithm" and "computation" by way of the Turing machine. His work played a pivotal role in the creation of the modern computer science. Turing is widely considered to be the father of Computer Science and Artificial Intelligence.

SLAIS (Slovenian Artificial Intelligence Society) is an association of researchers and practitioners in the field of Artificial Intelligence in Slovenia. Most of them come from universities and research institutes, but there are members from industrial and commercial organizations as well. The society promotes theoretical and applied research as well as the transfer of AI technology to industrial and commercial environments. SLAIS was founded in 1992 and is a member society of ECCAI (European Coordinating Committee for Artificial Intelligence).

This special issue is centered on the Alan Turing centenary or the Alan Turing Year and the 20th anniversary of the Slovenian Artificial Intelligence Society.

The first theme of the special issue is related to Turing's unique impact on Mathematics, Computing, Computer Science, Informatics, Artificial Intelligence, Philosophy and computational aspects of Physics, Biology, Linguistics, Economics and the wider scientific world. In our call for papers relating to Turing, contributions were encouraged either concerning his life or his achievements. In addition, we also called for papers relating to Donald Michie (1923–2007), Turing's contemporary and active member of Slovenian national institutions (associate member of J. Stefan Institute, and corresponding member of Slovene Academy of Sciences and Arts).

The second theme of the special issue is related to the 20th anniversary of SLAIS, the Slovenian AI society. We called for papers about important achievements of Slovenian AI that importantly contributed to the field of AI in the national and international context, both in theory and practice. We encouraged authors to present achievements from an historical perspective, their contributions to the field of AI, their impacts to an information society and possible impacts on the advancement of AI.

We are delighted to present the nine papers comprising this special issue. Two papers focus on Alan Turing. *The Child Machine vs. the World Brain* discusses Alan Turing's Child Machine idea of learning as an incremental process based on a mixture of instruction and trial-and-error learning. *Alan Turing, Turing Machines and Stronger* discusses contributions of Alan Turing to Computer Science, comparing Turing's importance to that of Einstein within Physics. Seven papers focus on different aspects of Artificial Intelligence. Two of them provide a summary of research issues, results and systems in the field of *Mining Big Data in Real Time* and in the field *Data Stream Mining For Ubiquitous Environments.* The remaining five papers review research contributions of SLAIS members over substantial periods of time: *Automatic Text Analysis by Artificial Intelligence*, *Advances in Data Mining for Biomedical Research*, *Explanation and Reliability of Individual predictions* in machine learning, *DEX Methodology: Thirty three years of qualitative multi-attribute modeling*, and *ORANGE: Data Mining Fruitful and Fun*. The latter two papers describe development issues in two publicly available systems that have over decades attracted large user communities world wide.

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