Special Issue

Fuzzy and Hybrid Functional–Algebraic Models in Data Science

Message from the Guest Editors

Data science addresses analysis and decision-making based on real-world data that are often uncertain, vague, incomplete, or subjective. While probabilistic and statistical approaches mainly model randomness, they may not adequately capture graded, linguistic, or non-additive uncertainty. Fuzzy sets and systems provide a rigorous mathematical framework for representing such phenomena and are therefore an important foundation of data science. Hybrid adaptive neuro-fuzzy inference systems combine fuzzy inference with data-driven learning and represent some of the earliest systematic machine learning frameworks. In addition, hybrid functional–algebraic models, including functions on algebraic structures and operators acting on functions, play a key role in data science. These models involve probability distributions, mass functions, membership functions, interval and linguistic data, aggregation operators, and similarity or correlation measures. This Special Issue welcomes original theoretical and applied contributions on mathematical foundations, functional–algebraic formulations, and hybrid models relevant to data science.

Guest Editors

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The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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