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Highlights from the 1st CNRS AISSAI Thematic Quarter on Causality

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Causal and effect questions are the cornerstone of numerous scientific disciplines, providing a framework for formulating and comprehending them under diverse conditions. In recent years, a notable interdisciplinary effort has been to develop new methods to address causality-related challenges. The first CNRS AISSAI Thematic Quarter on Causality, held earlier this year, marked a significant interdisciplinary step in advancing our understanding of causal relationships. This talk aims to highlight some insights and methodologies gleaned during the quarter. They include the use of sigma-algebra via the Witsenhausen Intrinsic Model (WIM) and the Information Dependency Model (IDM) as an alternative approach to the traditional functional causal models and causal graphs, the axiomatization of causality through Kolmogorov's measure-theoretic axiomatization of probability, and the use of cumulant tensors for characterizing hidden common causes when learning causal graphs in linear non-Gaussian causal models. Moreover, the quarter underscored the promising role of diffusion and normalizing flow methods in capturing the underlying causal data-generating processes, offering new horizons in causal representation learning.

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Classification de Session: Closing session