A Review of the Progress on the Kolmogorov-Arnold Theorem and Its Connection to KAN Neural Networks

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The Kolmogorov-Arnold Representation Theorem (KAT) is a foundational result in mathematical analysis that states any multivariate continuous function can be represented as a superposition of continuous univariate functions and a finite number of additions. This theorem has played a crucial role in the development of function approximation theories and has recently gained renewed interest as the theoretical backbone of Kolmogorov-Arnold Networks (KANs). In this talk, I will review the historical development and refinements of the Kolmogorov-Arnold Theorem and present the approximate capability of the KANs.