Discontinuity Networks: A KAN-Inspired Approach to Approximating Discontinuous Functions

Yu-Chen Shu
Department of Mathematics and Miin Wu School of Computing,
National Cheng Kung University, Taiwan

In this talk, I will discuss the approximation capabilities of Kolmogorov–Arnold Networks (KANs) and Multi-Layer Perceptrons (MLPs). We demonstrate that these two architectures are nearly equivalent in their ability to approximate continuous functions, depending on the choice of activation functions. Leveraging the flexibility of activation function design in KANs, we introduce a novel discontinuity network inspired by the structure of KANs. We will present a convergence analysis of this network and support our findings with corresponding numerical results.