Universität Konstanz

Cascade Processes for Sparse Machine Learning

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Deep learning continues to achieve impressive breakthroughs across disciplines but relies on increasingly large neural network models that are trained on massive data sets. Their development inflicts costs that are only affordable by a few labs and prevent global participation in the creation of related technologies. In this talk, we will ask the question if it really has to be like this and discuss some of the major challenges that limit the success of deep learning on smaller scales, which we often face in case of socioeconomic problems. By casting a neural network as a cascade process that evolves on a complex network, we propose to tackle major computational challenges that are induced by the overparameterization of modern neural network models and discuss advantages of this view on modelling systemic risk inherent in international food trade.

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