CABDyN / INET Oxford SEMINAR SERIES

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'Compressible components reveal network architectures'

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ABSTRACT:

We introduce a framework for compressing complex networks into powergraphs with overlapping powernodes. The most compressible components of a given network provide a highly informative sketch of its overall architecture. In addition this procedure also gives rise to a novel, link-based definition of overlapping node communities in which nodes are defined by their relationships with sets of other nodes, rather than through connections within the community. We show that this approach yields valuable insights into the large-scale structure of transcription networks, food webs, and social networks, and allows for novel ways in which network architecture can be studied, defined and classified. Furthermore, when paired with enrichment analysis of node classification terms, this method can provide a concise overview of the dominant conceptual relationships that define the network.