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**Measuring importance in complex networks** GREG MORRISON, LEVI DUDTE, L. MAHADEVAN, Harvard School of Engineering and Applied Sciences — A variety of centrality measures can be defined on a network to determine the global ‘importance’ of a node  $i$ . However, the inhomogeneity of complex networks implies that not all nodes  $j$  will consider  $i$  equally important. In this talk, we use a linearized form of the Generalized Erdos numbers [Morrison and Mahadevan EPL 93 40002 (2011)] to define a pairwise measure of the importance of a node  $i$  from the perspective of node  $j$  which incorporates the global network topology. This localized importance can be used to define a global measure of centrality that is consistent with other well-known centrality measures. We illustrate the use of the localized importance in both artificial and real-world networks with a complex global topology.

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