

# A parallel closed centrality algorithm for complex networks

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**Abstract**—Complex networks are large and analysis of these networks require significantly different methods than small networks. Parallel processing is needed to provide analysis of these networks in a timely manner. Graph centrality measures provide convenient methods to assess the structure of these networks. We review main centrality algorithms, describe implementation of closed centrality in Python and propose a simple parallel algorithm of closed centrality and show its implementation in Python with obtained results.

**Index Terms**—*complex network, closeness centrality, betweenness centrality, parallel algorithm*