

From social science to biology, numerous applications often rely on graphlets (network motifs) for intuitive and meaningful characterization of networks at both the global macro-level as well as the local micro-level. While graphlets have witnessed a tremendous success and impact in a variety of domains, there has yet to be a fast and efficient approach for computing the frequencies of these subgraph patterns. We proposed a fast, efficient, and parallel algorithm for counting  $k$ -graphlets. On a large collection of 300+ networks from a variety of domains, our graphlet counting strategies are on average 460x faster than the state-of-the art methods. This talk will describe some of the largest graphlet computations to date on billion node graphs, as well as the largest systematic investigation on over 300+ networks from a variety of domains, such as social, biological, and technological graphs.