

Interdisciplinary Center for Network Science and Applications (iCeNSA) Colloquia

Kevin Bassler
University of Houston

Will give a lecture entitled:

Improved Community Structure Detection using a Modified Fine-Tuning Strategy

Wednesday, August 5, 2009

4:00 pm

Location - 184 Nieuwland Science Hall

Abstract: The community structure of a complex network can be determined by finding the partitioning of its nodes that maximizes modularity. Many of the proposed algorithms for doing this work by recursively bisecting the network. We show that this unduely constrains their results, leading to a bias in the size of the communities they find and limiting their effectiveness. To solve this problem, we propose adding a step, which is a modification of the Kernighan-Lin algorithm, to the existing algorithms. This additional step does not increase the order of their computational complexity. We show that, if this step is combined with a commonly used method, the identified constraint and resulting bias are removed, and its ability to find the optimal partitioning is improved. The effectiveness of this combined algorithm is also demonstrated by using it on real world example networks. For a number of these examples, it achieves the best results of any known algorithm.

If you would like to meet with this visitor while he is in town (Monday-Friday), please contact Mallory Davis at mdavis14@nd.edu or 1-7095.