

Uri Keich

Cornell University

Title: "A Conservative Parametric Approach to Estimating Motif Significance"

Abstract

We show that in the context of twilight zone searches, or searches for relatively weak motifs, the paradigm of relying on entropy scores and their E-values can surprisingly lead to undesirable results. This motivates our design of a novel, parametric approach for analyzing the significance of sequence motifs. We demonstrate the fidelity of our significance analysis and show how it can assist in improving the performance of de novo motif finders on real biological data. We conclude by comparing our parametric approach with a recently advocated alternative which relies on a normal approximation. We show that the normal approximation is not supported by our tests and that our method provides a more reliable significance estimation.