

# GENETICS, BIOINFORMATICS, AND SYSTEMS BIOLOGY COLLOQUIUM

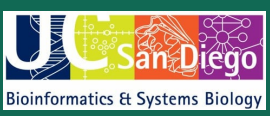
THURSDAY JANUARY 6  
12:00PM PST

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### "THE THEORETICAL ANALYSIS OF SEQUENCING BIOINFORMATICS ALGORITHMS"

The theoretical analysis of algorithm performance has been an important tool in the engineering of algorithms in many application domains. Its goals are to predict the empirical performance of an algorithm and to be a yardstick that drives the design of novel algorithms that perform well in practice. However, when it comes to sequencing bioinformatics, an application area concerned with algorithms for biological sequencing data, theoretically analyzing algorithms has been challenging and has had a mixed record in achieving its goals. In this talk, I will make an attempt at the first systematic and critical survey of the application of theoretical analysis of algorithm techniques to sequencing bioinformatics. I explore some of the techniques that have been applied and the extent to which they have been successful. I use the edit distance computation problem as a case study but also explore the problems of genome assembly, structural variation detection, and compact data structures. I conclude by discussing steps that can be taken to help improve the impact and applicability of the theoretical analysis of algorithms in sequencing bioinformatics.

Organization Committee: J. Gleeson, J. Sebat  
GBSBC Seminar Coordinator: R. White

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