You are cordially invited to a Computational Genomics Seminar

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*"*Machine learning unveils insights into rules governing microRNA-target interactions*"*

Wednesday, March 27 at 11:15

School of Computer Science, Check Point Building, Room 420

**Abstract:** MicroRNAs (miRNAs) are small RNAs that play a major role in regulating gene expression via hybridization to complementary sequences on target mRNAs, repressing their translation to proteins or mediating their degradation. Identifying miRNA target sites on mRNAs is a fundamental step in understanding miRNA function. Experimental methods that can produce high-throughput, unambiguous interacting miRNA–target datasets have pushed the field forward in recent years. However, due to technical challenges involved in the application of the experimental methods, there is a constantly increasing interest in using computational approaches for miRNA target prediction, especially those that are based on machine learning (ML) models. In my talk, I will describe the challenges involved in the application of ML models to miRNA target prediction. In addition, I will show how we have been using classic and deep learning approaches to investigate the transferability of miRNA-target interaction rules between species; the potential of transfer learning technique to tackle the challenge of limited training data; the impact of different methods used to generate negative data on the classification of true miRNA-target interactions; and the underlying rules and patterns governing interactions across various mRNA regions.

Host: Prof. Ron Shamir, School of Computer Science, Tel Aviv University