



University
of Basel

Department
Biozentrum



Swiss Institute of
Bioinformatics

BIOZENTRUM

The Center for
Molecular Life Sciences

Basel Computational Biology Seminar

Yaron Orenstein

Ben-Gurion University, Israel

“Deep learning for RNA structure and protein-RNA interactions prediction”

Protein-RNA binding, mediated through both RNA sequence and structure, plays vital role in many cellular processes. Modelling the sequence and structure binding preferences of an RNA-binding protein is a key computational challenge. In addition, accurate RNA structure prediction is essential for accurate protein-RNA binding.

In the talk, I will describe two contributions in this field: (1) a new deep learning approach to learn RNA sequence and structure binding preferences from large biological datasets; (2) a new deep learning approach to predict RNA probing data. I will present results of our algorithms outperforming the state of the art, both in vitro and in vivo. I will give examples of the biological insights we can gain by applying our neural networks to largest datasets of protein-RNA interactions and high-throughput RNA probing. I will conclude with open questions and a discussion on the success of deep learning in computational biology.

Date: **Monday, April 15th, 2019**
Time: **16:00 h**
Room: **Lounge (level 13), Klingelbergstrasse 61**
(vis-à-vis Pharmazentrum)
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