EP-IT Data science seminars

SPEAKER: Yoav Benjamini

TITLE: **PHYSTAT Seminar: Addressing the effect of selection on inference with the False Discovery Rate**

DATE: 5 Feb 2020, 11:00

PLACE: 40/S2-B01 - Salle Bohr

ABSTRACT

Estimates, tests, and confidence intervals are constructed to enjoy some statistical properties when used on a single pre-specified parameter. When such inferences are made on parameters that become promising after looking at the data, their properties are no longer guaranteed – the look elsewhere effect being a case in point. I shall briefly review all available approaches to the problem. I shall review in depth the false discovery rate (FDR) approach, and the somewhat related conditional approach. After presenting the basic FDR methodologies, I will discuss methodologies for (i) model selection; (ii) assessing the replicability of a discovery; (iii) searching for discoveries through a complex hierarchical system. The latter potentially allows addressing the varied use of a database by many. I shall end by arguing that selection, being too often ignored, is undermining the replicability of discoveries in our current industrialised science. No prior statistical knowledge is assumed beyond the understanding of the first sentence. As a follow-up to the lecture, for those who are interested, there will be an informal `Question and Answer' session with the speaker until 1pm in the same room. Please come along with your questions.

Organised by: M. Girone, M. Elsing, L. Moneta, M. Pierini Event co-organised with the [PHYSTAT Committee](https://espace.cern.ch/phystat) **Coffee will be served at 10h30**