



Experimental High Energy Physics/Data science

Postdoctoral position

The Experimental HEP group at the Weizmann Institute of Science (WIS) is looking for a postdoctoral research fellow in the field of Experimental High Energy Physics for exciting new research focusing on applications and development of advanced machine learning techniques for event reconstruction and data analysis at the LHC.

Our research is focused on the measurement of the Yukawa couplings of the Higgs boson to quarks. At the frontline of LHC physics is the precision measurement of the coupling to b-quarks. The group is also strongly interested in the precision reach of the measurement of the Yukawa coupling to charm quarks and exploring the possible development of strange tagging techniques. State of the art Deep learning techniques are essential to make the most of the ATLAS data to achieve the highest possible precision in these measurements. Our mission is to develop novel or improve and apply state of the art techniques for event reconstruction at the LHC.



Job description

The position will involve close collaboration with the NYU data science/HEP group of Kyle Cranmer and Roma/Sapienza group of Marumi Kado on a variety of projects. We also collaborate with the WIS CS group. our group focuses on:

- Using graph neural networks for reconstruction tasks such as particle flow and vertex reconstruction
- super-resolution of calorimeter energy measurements
- improving heavy flavor tagging with graph neural networks
- anomaly detection with autoencoders
- density estimation with graph networks

This job is also suitable for scientists who wish to be involved at the LHC and have not done it so far. Some more details about our group activity can be found here:

<http://www.weizmann.ac.il/particle/Gross/>.

The post is to be based in WIS with trips to NYU, CERN, and Workshops if necessary, and when time allows. Part of the job is under the framework of an NSF/BSF grant with NYU.

Requirements The applicant should have a Ph.D. degree in physics and/or computer science, with excellent programming skills. Experience in machine-learning techniques is an advantage. Leadership skills are a benefit since the job involves also supervising students and possible teaching.

Salary and benefits Following the University regulations: The positions are initially for two years, and can be extended. For details see:

<https://www.weizmann.ac.il/feinberg/fellowship-aid/postdoctoral-fellows>.

Application The application should include a CV and a list of publications. Applicants should arrange to have three letters of reference. Applications and recommendation letters should be sent by email to eilam.gross@weizmann.ac.il with a subject title **HEP Postdoc Search**. The review of the applications will begin immediately and will continue until the positions are filled.

For further information please contact [Eilam Gross](#)