

Postdoctoral Research Position in Machine Learning for Collider Experiments

About the Group

The Gross group at the Weizmann Institute of Science plays a leading role at the intersection of machine learning and experimental particle physics. Central to the group's diverse research activities are the core problems of detector reconstruction and simulation in collider experiments. Research targets both direct applications within the ATLAS experiment and independent, methods-focused publications in EPJC, PRL/PRD, and MLST or machine learning conference workshops. For more information about the group please visit: <https://www.weizmann.ac.il/particle/gross/>

Central research activities

- Lead the deployment of hypergraph and transformer-based particle reconstruction algorithms within the ATLAS experiment for high-luminosity runs
- Develop fast surrogate models for detector simulation and reconstruction, extending the Parnassus framework
- Train multimodal foundation models to optimize detector data representations
- Publish independent machine learning methodology papers in physics and computer science journals
- Collaborate with PhD students and present work at leading conferences in the field

Qualifications

- PhD in particle physics, astrophysics, computer science, or a closely related field
- Experience with machine learning (PyTorch preferred)
- Experience with reconstruction and/or simulation algorithms at particle physics experiments
- Familiarity with generative models and transformers is highly desirable
- Ability to lead research projects, supervise students, and publish results independently

Opportunities

- Support for methods-focused ML research with application to particle physics and beyond
- Access to local GPU cluster
- Extended visits to CERN
- Competitive postdoctoral salary
 - <https://www.weizmann.ac.il/wsos/fellowship-aid/postdoctoral-fellows>
- Enhanced fellowships available on competitive basis through external programs:
 - <https://azrielifoundation.org/fellows/internationalpostdoctoral>
 - <https://zuckermanstem.org/ourprograms/postdoc-program>

How to Apply

Interested candidates should send a CV, a brief description of research interests and experience, and the contact information for 2-3 references to Prof. Eilam Gross at eilam.gross@weizmann.ac.il. Review of applications will begin immediately and continue until the position is filled.