

**Institut Henri Poincaré**  
11 rue Pierre et Marie Curie, 75231 Paris cedex 05  
**String Theory in Greater Paris**

**Rencontres Théoriciennes**  
**“Supergravité, théorie des cordes et théorie M”**

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**Deeping-Learning the Landscape**

*We propose a paradigm to deep-learn the ever-expanding databases which have emerged in mathematical physics and particle phenomenology, as diverse as the statistics of string vacua or combinatorial and algebraic geometry. As concrete examples, we establish multi-layer neural networks as both classifiers and predictors and train them with a host of available data ranging from Calabi-Yau manifolds and vector bundles, to quiver representations for gauge theories. We find that even a relatively simple neural network can learn many significant quantities to astounding accuracy in a matter of minutes and can also predict hitherto unencountered results. This paradigm should prove a valuable tool in various investigations in landscapes in physics as well as pure mathematics.*

**Institut Henri Poincaré, salle 314, 3<sup>ème</sup> étage**

Retrouvez les activités de la communauté parisienne de théorie des cordes sur  
<http://string.lpthe.jussieu.fr>  
La liste de tous les séminaires en région parisienne est disponible sur  
<http://string.lpthe.jussieu.fr/semparis>

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