



Contribution ID: 407

Type: Oral

## Uncertainty reduction by gradient descent

*Wednesday 13 March 2019 18:20 (20 minutes)*

Data analysis based on forward simulation often require the use of a machine learning model for statistical inference of the parameters of interest.

Most of the time these learned model are trained to discriminate events between backgrounds and signals to produce a 1D score, which is used to select a relatively pure signal region.

The training of the model does not take into account the final objective that is to estimate the values of the parameters of interest.

Those measurements also depends on other parameters, denoted as nuisance parameters, that will induce systematic errors on estimated values.

We propose to explore learning methods that directly minimize the measurement error (both statistical and systematic) on a realistic case coming from HEP.

**Primary authors:** Mr ESTRADE, Victor (LRI); ROUSSEAU, David (LAL-Orsay, FR); GERMAIN, Cecile (Universite Paris Sud); GUYON, Isabelle

**Presenter:** Mr ESTRADE, Victor (LRI)

**Session Classification:** Track 2: Data Analysis - Algorithms and Tools

**Track Classification:** Track 2: Data Analysis - Algorithms and Tools