Contribution ID: **133** Type: **not specified**

Reducing MC Variance One Control Variate at a Time

Monday 8 May 2023 17:15 (15 minutes)

In HEP, we preform multidimensional integrals to compute observables to compare with experimental data. To do so, we use Monte Carlo integration – it scales well with dimensionality but it suffers from a slow convergence rate. As such, it is important to reduce the variance of the result as much as possible and so many techniques have been created for this task. In this talk I will introduce one such method called "control variates" which, when applied to the existing vegas algorithm, returns better results than vegas alone.

Author: SCOTT, jacob

Co-authors: KONG, KC; MATCHEV, Konstantin (University of Florida (US)); SHYAMSUNDAR, Prasanth (Fermi National Accelerator Laboratory); MRENNA, Stephen (FERMILAB)

Presenter: SCOTT, jacob

Session Classification: Tools I