

The use of adversaries for optimal neural network configuration

Tuesday, 10 July 2018 15:00 (15 minutes)

Data from B-physics experiments at the KEKB collider have a substantial background from $e^+e^- \rightarrow q\bar{q}$ events. To suppress this we employ deep neural network algorithms. These provide improved signal from background discrimination. However, the neural network develops a substantial correlation with the ΔE kinematic variable used to distinguish signal from background in the final fit due to its relationship with the input variables. The effect of this correlation is counter-acted by deploying an adversarial neural network. Overall the adversarial deep neural network performs better than an unoptimised commercial package, NeuroBayes.

Primary authors: Mr HAWTHORNE-GONZALVEZ, Anton (University of Melbourne); Prof. SEVIOR, Martin (University of Melbourne)

Presenter: Prof. SEVIOR, Martin (University of Melbourne)

Session Classification: T6 - Machine learning and physics analysis

Track Classification: Track 6 –Machine learning and physics analysis