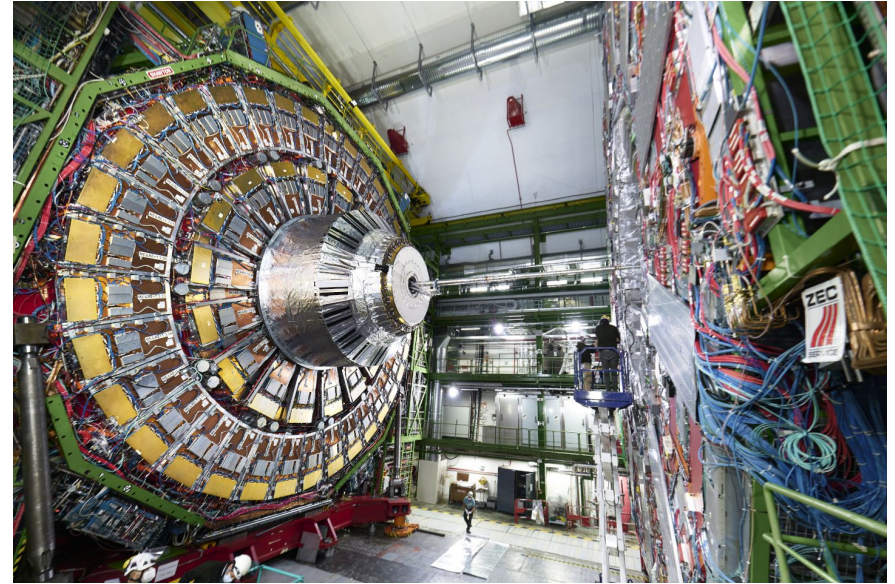
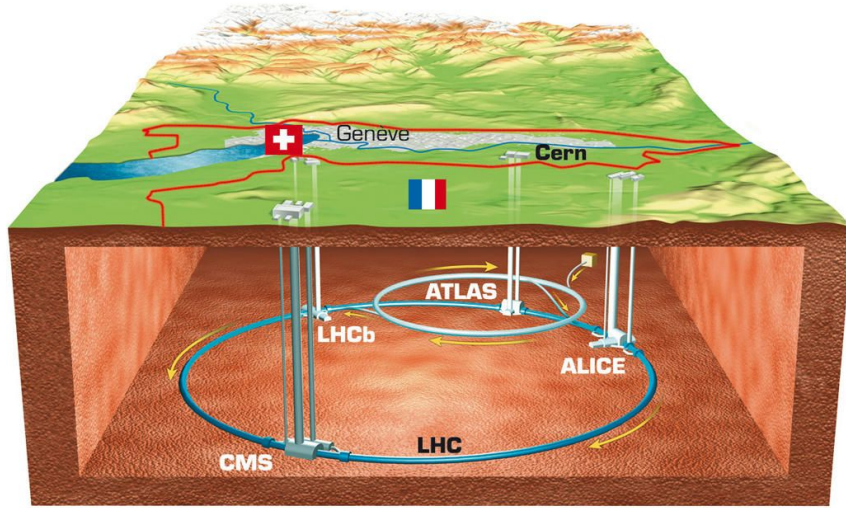


Simulación de Detectores de Partículas del Experimento LHCb

Ing. Fernando Ugalde Green



¿Qué es el CERN?

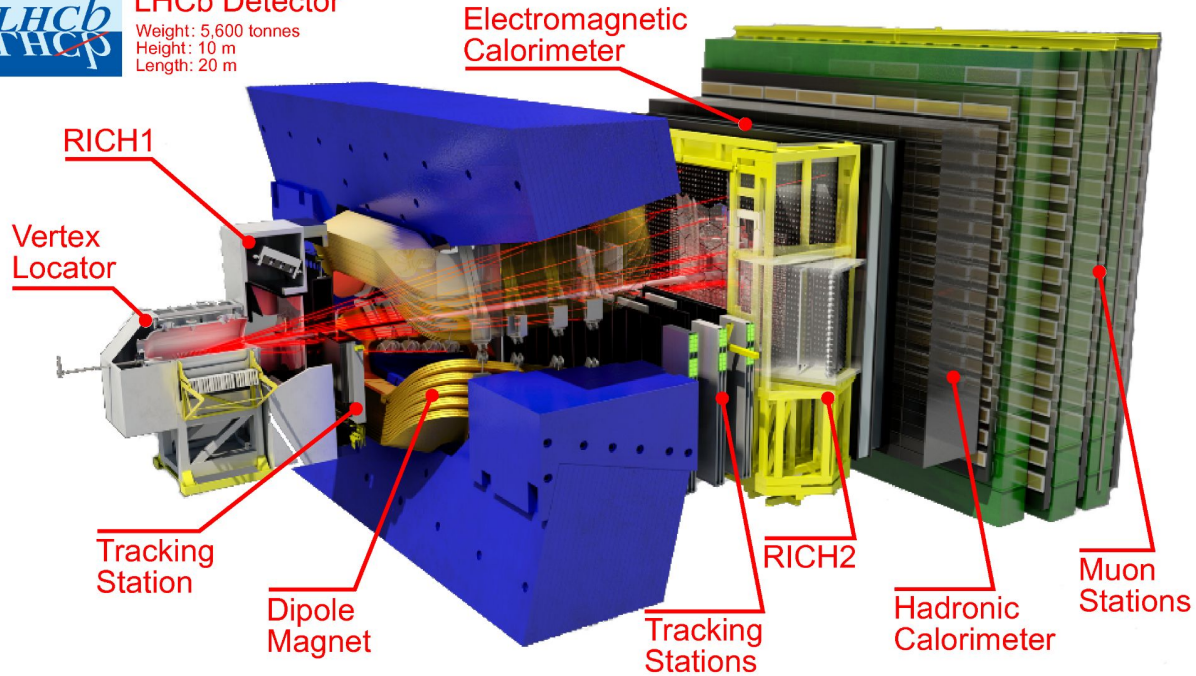


¿Qué es el LHCb?



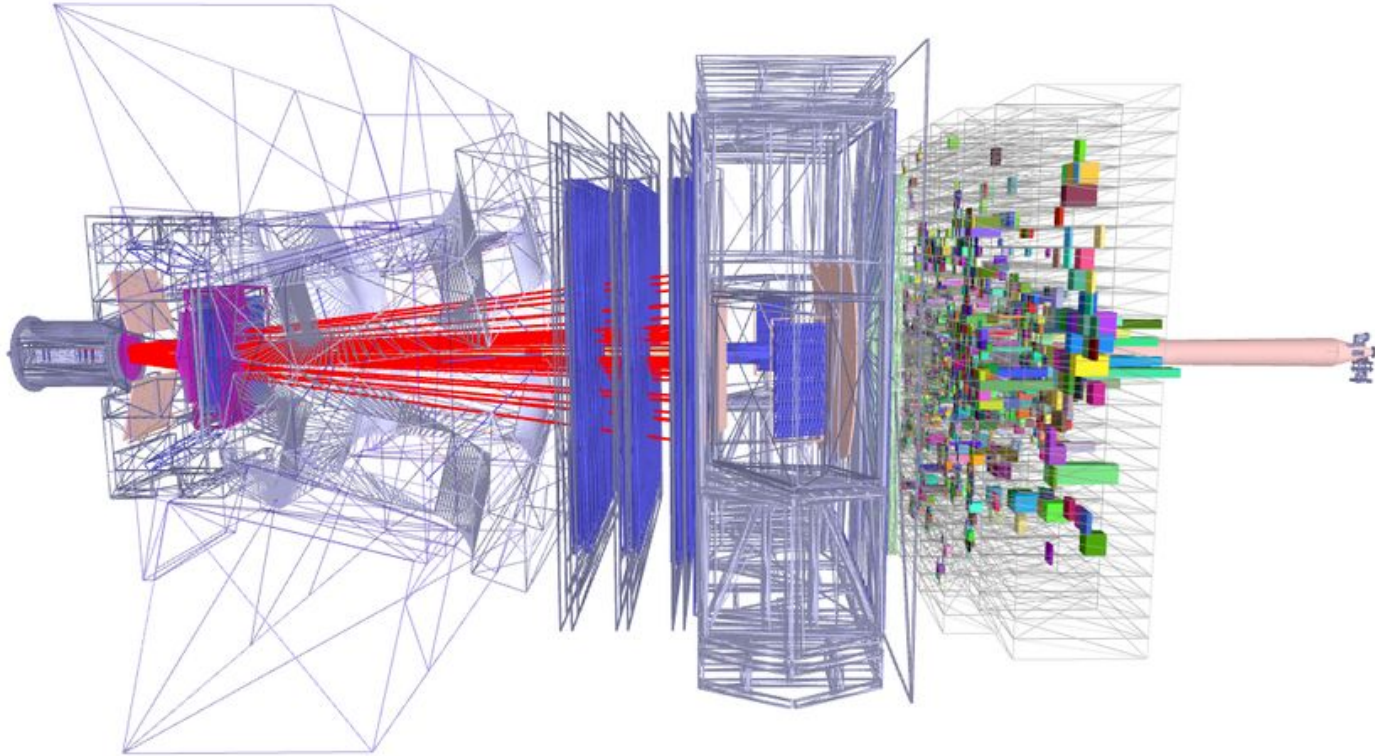
LHCb Detector

Weight: 5,600 tonnes
Height: 10 m
Length: 20 m



1. Simular

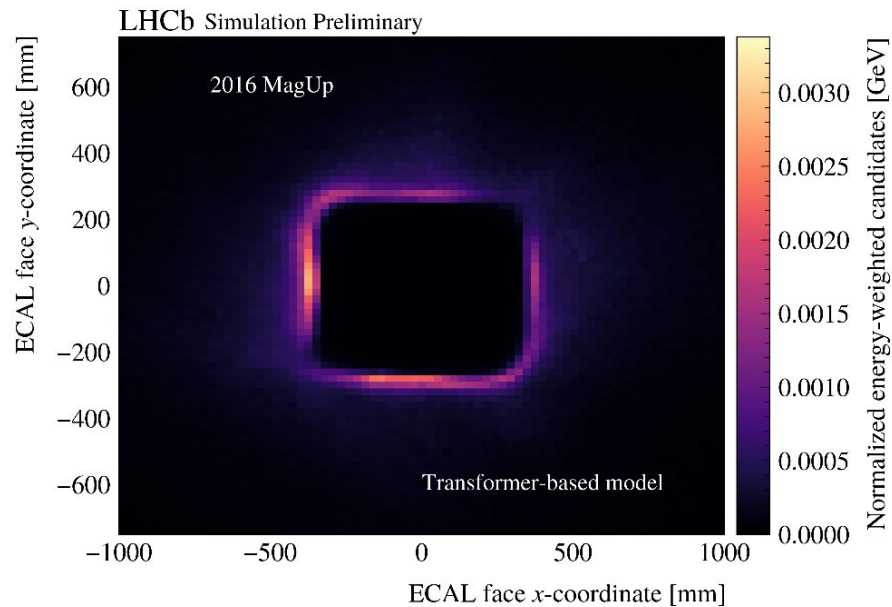
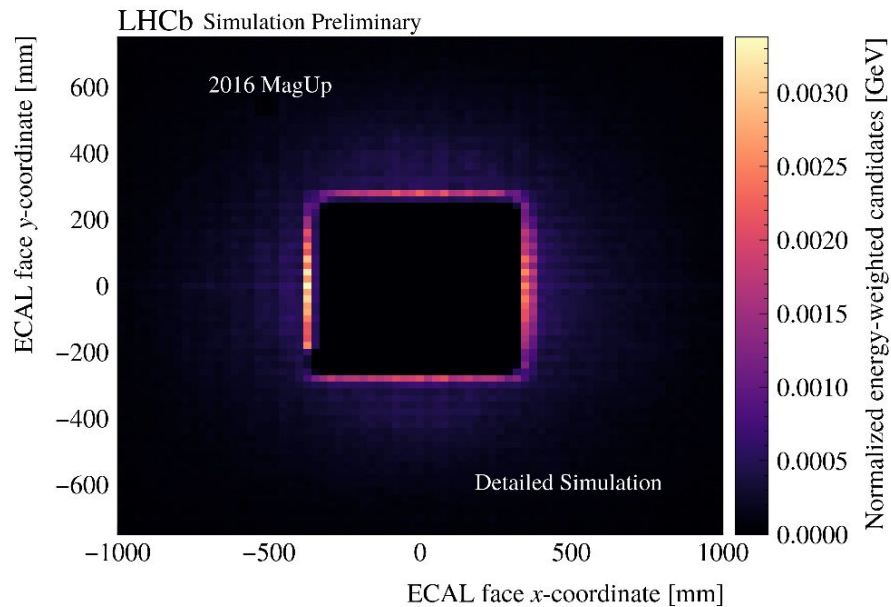
2. Colisionar



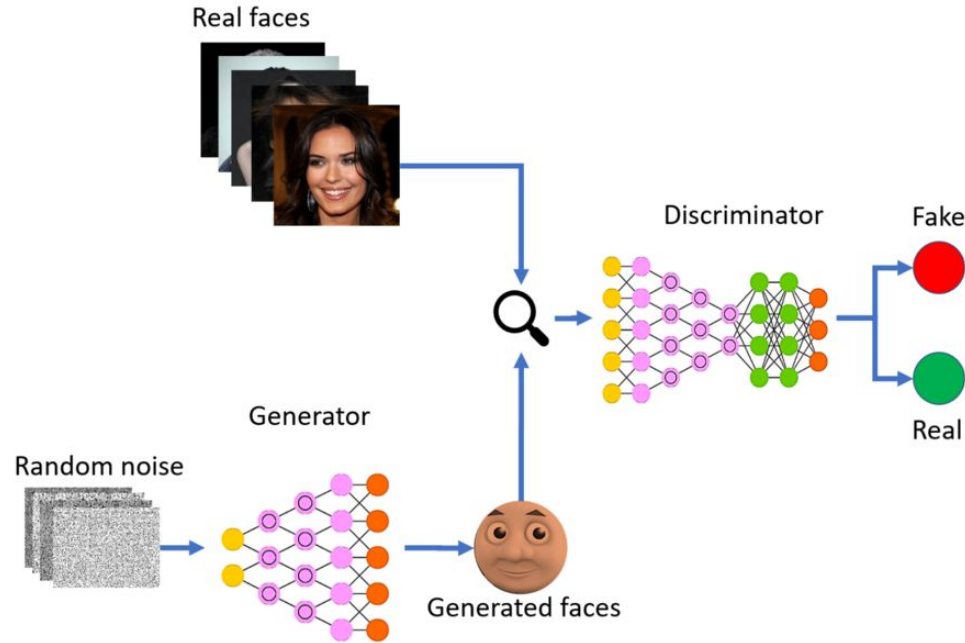
90%

Tiempo de cómputo de CPU usado en simulaciones.

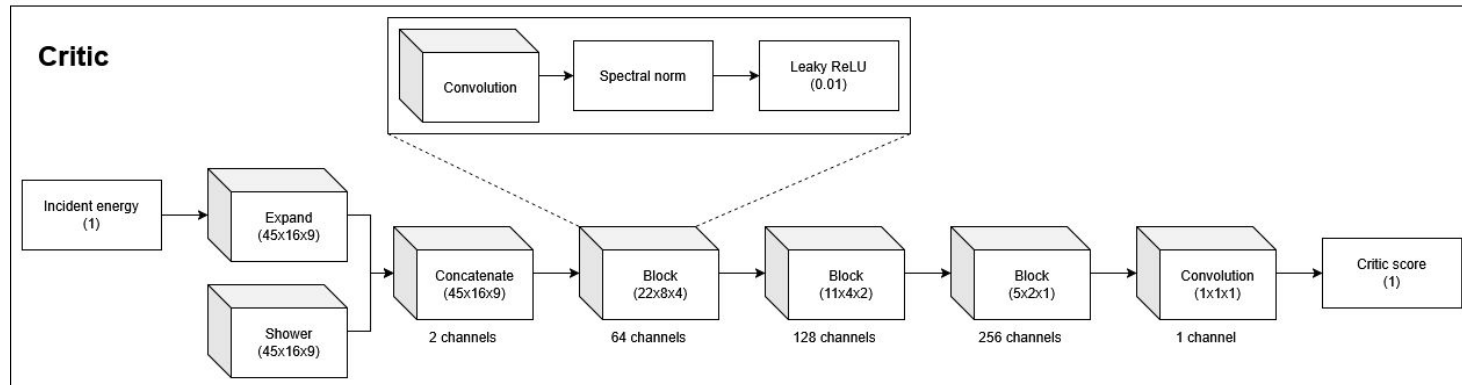
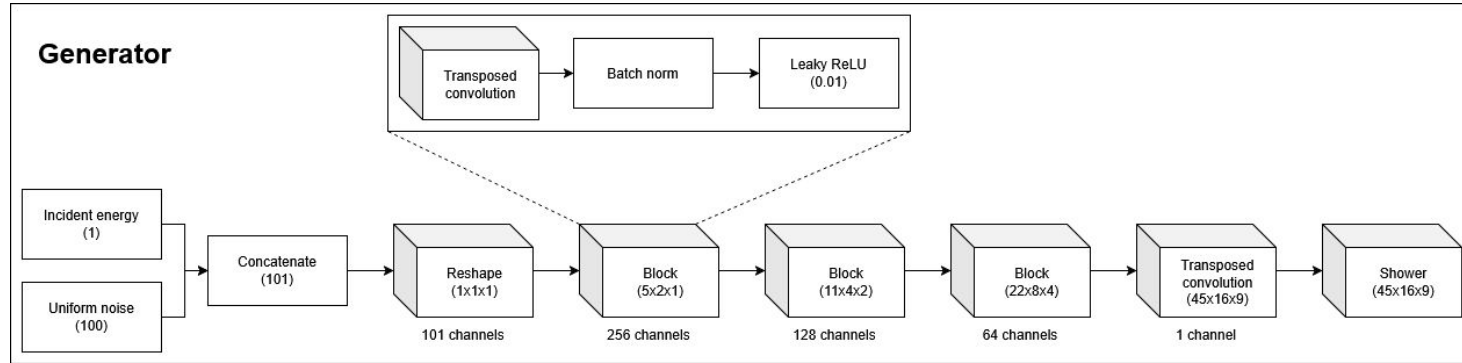
Solución: Simular con redes neuronales



Generative Adversarial Network (GAN)

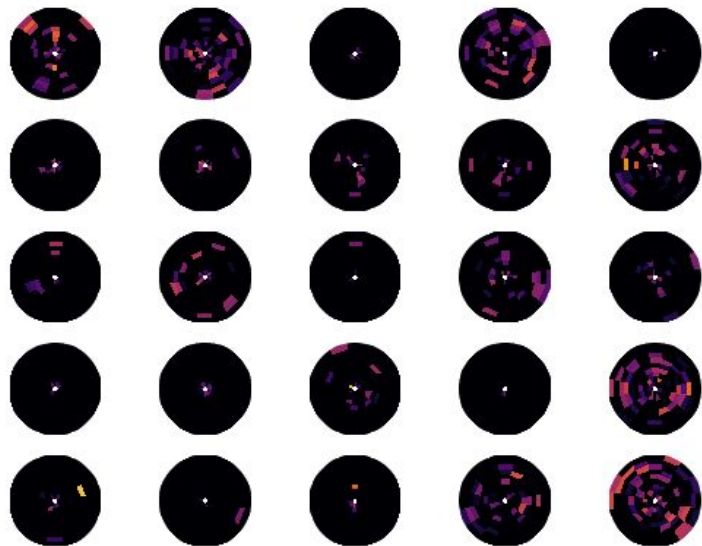


Generative Adversarial Network (GAN)

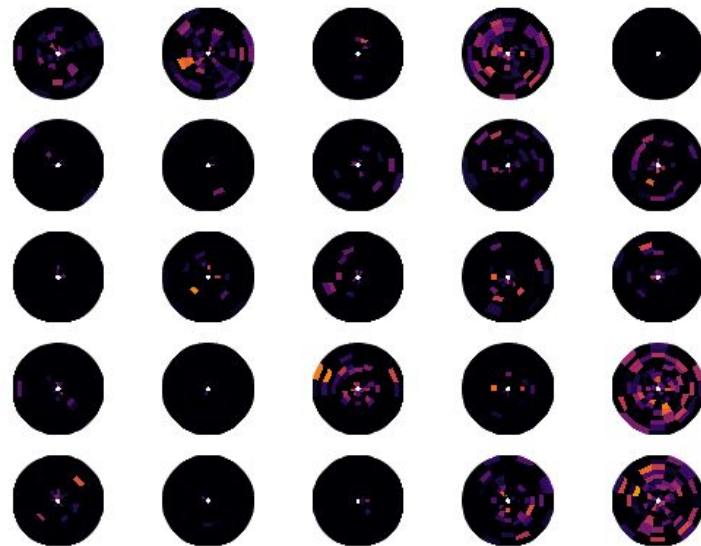


Resultados Preliminares

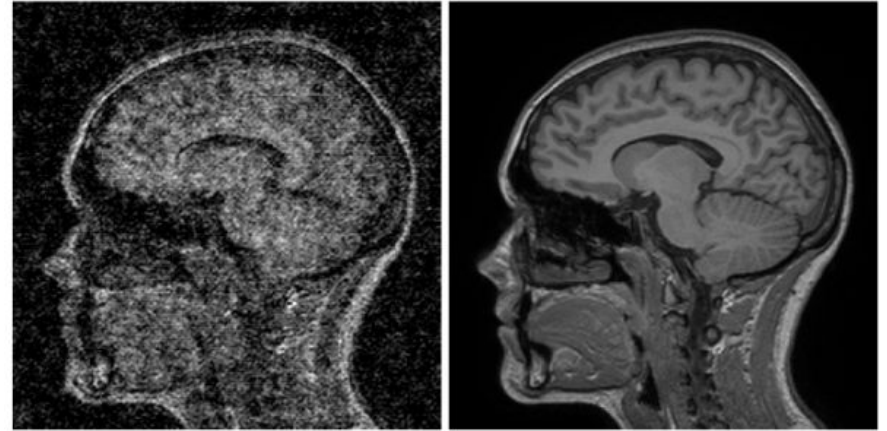
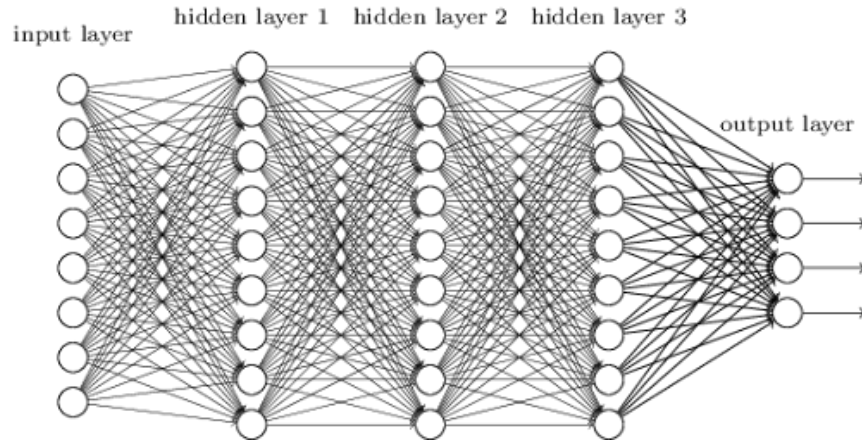
Targets



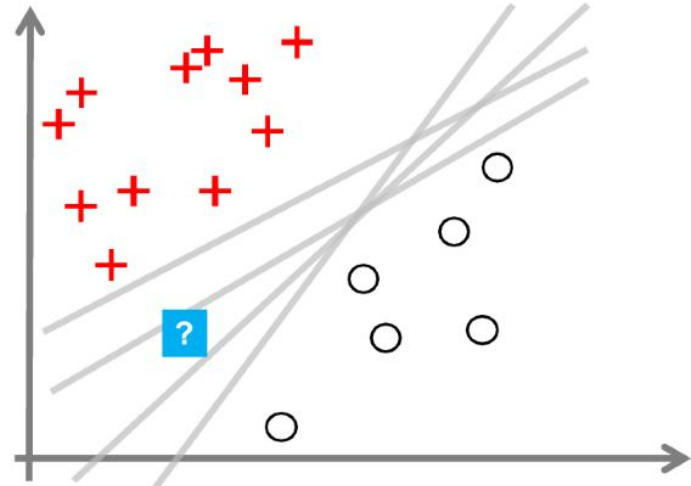
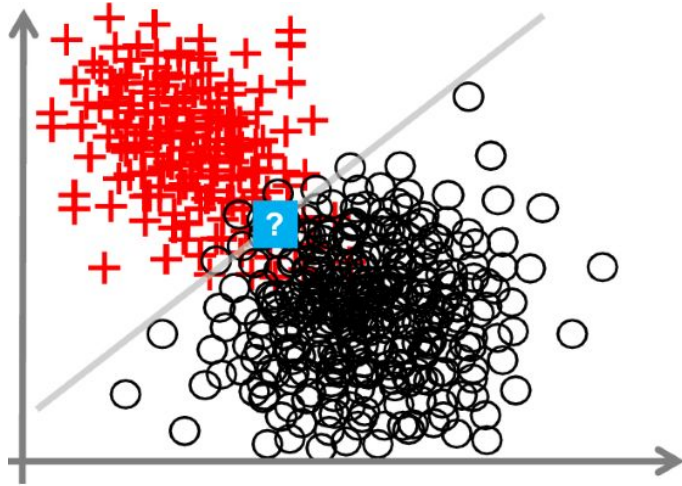
Simulations



Las redes neuronales son cajas negras

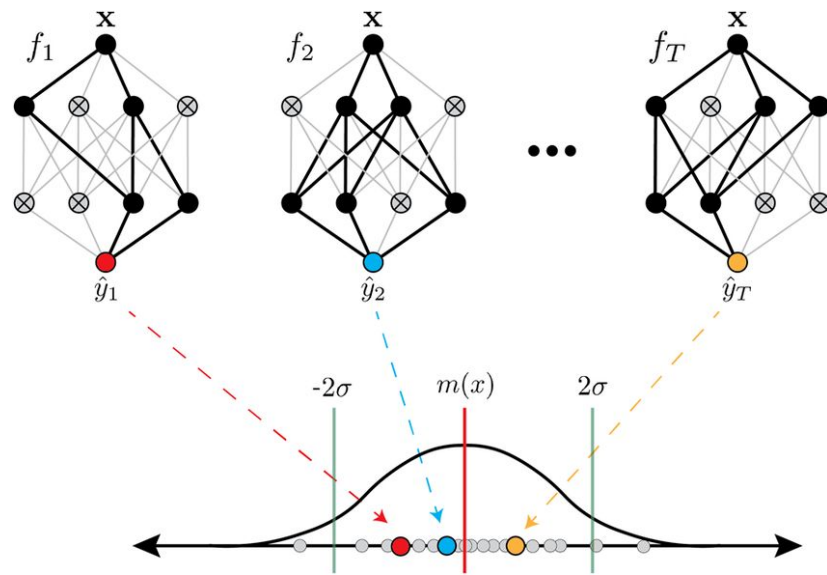


Solución: Estimación de Incertidumbre

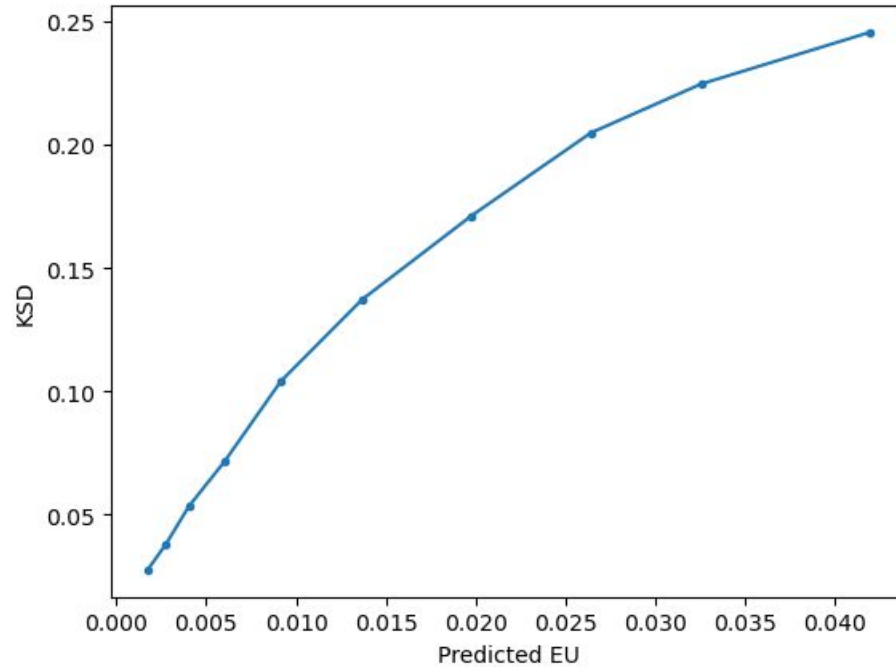


¿Cómo podemos
aproximar la
incertidumbre?

Monte Carlo Dropout



Resultados Preliminares



iMuchas gracias!