

Run m number of Apollo simulations to generate peak impulse distribution dataset.

Normalise entire input dataset.

$k = 1$

Remove  $k^{\text{th}}$  sample from entire dataset and keep as "validation" sample.

Training dataset of  $m - 1$  samples ( $k^{\text{th}}$  sample has been removed).

$i = 1$

nonlinear regression of gaussian function fit to Apollo  $i^{\text{th}}$  sample

store the six optimum Gaussian parameters

is  $i = (m-1)$ ?

yes

Fit parameter-standoff functions to the  $(m-1)$  data points for each (six) Gaussian parameters

$i = i + 1$

Six Gaussian parameter-standoff functions

Use parameter-standoff functions to predict parameter values from standoff of  $k^{\text{th}}$  sample for all six parameters

Six predicted Gaussian parameters.

Input predicted Gaussian parameters into Gaussian function.

Peak impulse distribution prediction.

Plot peak impulse distribution prediction and compare against the validation sample. Record Root-Mean-Square error.

is  $k = m$ ?

yes

no

$k = k + 1$

Dataset of peak impulse distribution predictions.