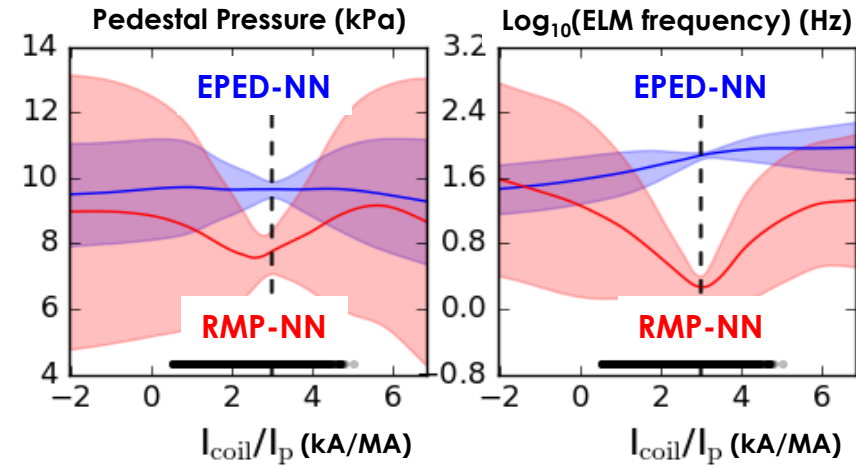
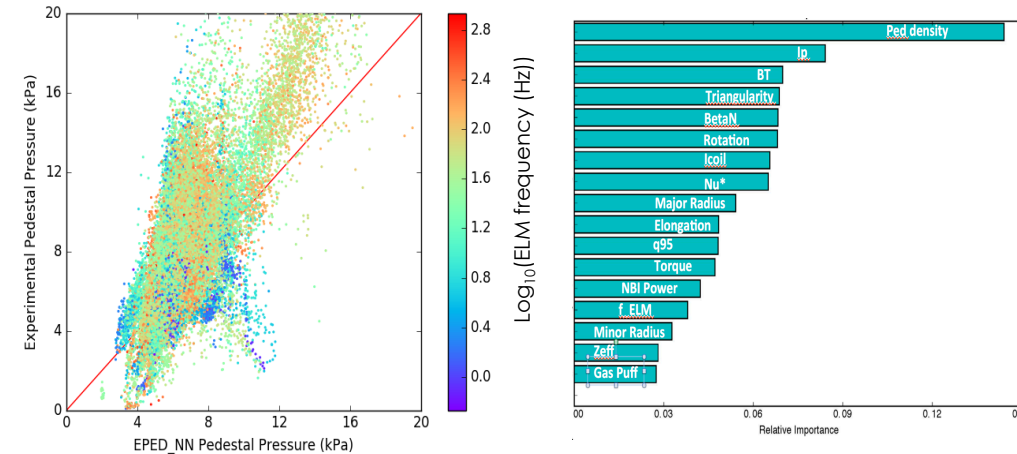


Neural Net Based Tool Developed to Predict the Effect of RMP ELM Control on Pedestal Pressure Compared with EPED1 Predictions

- ITER Operating Scenarios analysis needs the effect of RMP ELM control on pedestal pressure vs EPED1 predictions – ITPA IOS/PEP task
 - Neural networks provide fast, efficient, accurate predictions of both EPED1 calculations and RMP effects



- RMP-NN trained on 39k DIII-D ELM control time slices to predict differences from EPED-NN
- Random Forrest analysis used to determine most important actuator parameters

- Example: Change in pedestal pressure with RMP-NN vs EPED-NN can be between zero and -20% over RMP amplitude scan
 - RMP coil current normalized to I_p for extrapolation to ITER (eg. I_c/I_p(baseline) 6 kA/MA)
 - Explored parameter space near ELM suppression in DIII-D (values at dashed line)