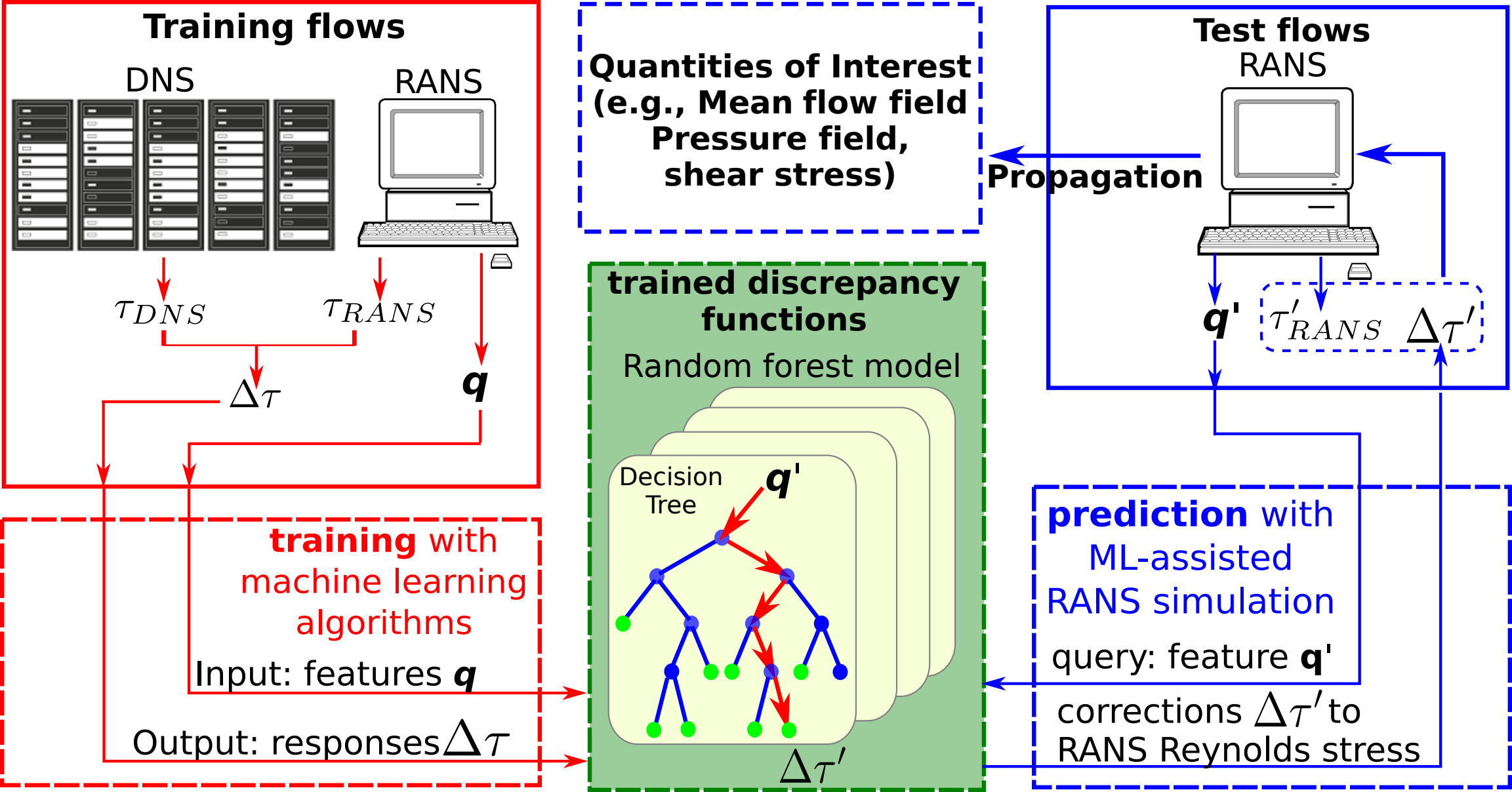
Training flows
DNS
RANS
$\tau_{DNS}$
$\tau_{RANS}$
$\Delta\tau$
$q$
Quantities of Interest
(e.g., Mean flow field
Pressure field,
shear stress)
Propagation
Test flows
RANS
$q'$
$\tau'_{RANS}$
$\Delta\tau'$
trained discrepancy functions
Random forest model
Decision Tree
$q'$
$\Delta\tau'$
training with machine learning algorithms
Input: features $q$
Output: responses $\Delta\tau$
prediction with ML-assisted RANS simulation
query: feature $q'$
corrections $\Delta\tau'$ to RANS Reynolds stress