SOSAA RSM using the Icarus Architecture
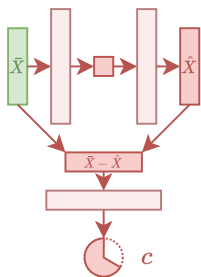
Input: $\bar{X} := (X, X - X_{train})$ Pairwise Difference Regression

Out-of-Distribution Detector
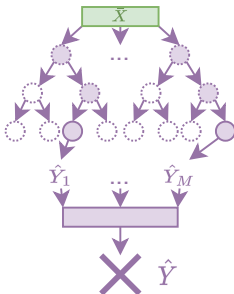
$\bar{X}$ $\hat{X}$

$\bar{X} - \hat{X}$

c

Confidence Score

Prediction Model

$\bar{X}$

...

$\hat{Y}_1$ ... $\hat{Y}_M$

$\hat{Y}$

Point-Prediction

Uncertainty Quantifier

$X' \sim \bar{X}$ $X' \sim \bar{X}$ $X' \sim \bar{X}$

$\hat{Y}'$ ... $\hat{Y}'$

$\hat{\sigma}$

Uncertainty Level

Trained with
$\bar{X}_{ID} \cup \bar{X}_{OOD}$

Trained with
$(\bar{X}_{train}, Y_{train})$
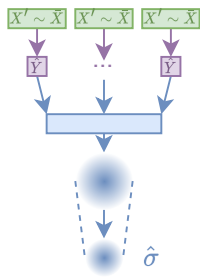
Calibrated with
$Y_{valid} - \hat{Y}_{valid}$

Output: $(Y \approx \hat{Y} \pm \hat{\sigma}) \mid c$ **prediction** with **uncertainty** level, conditioned by **confidence** score