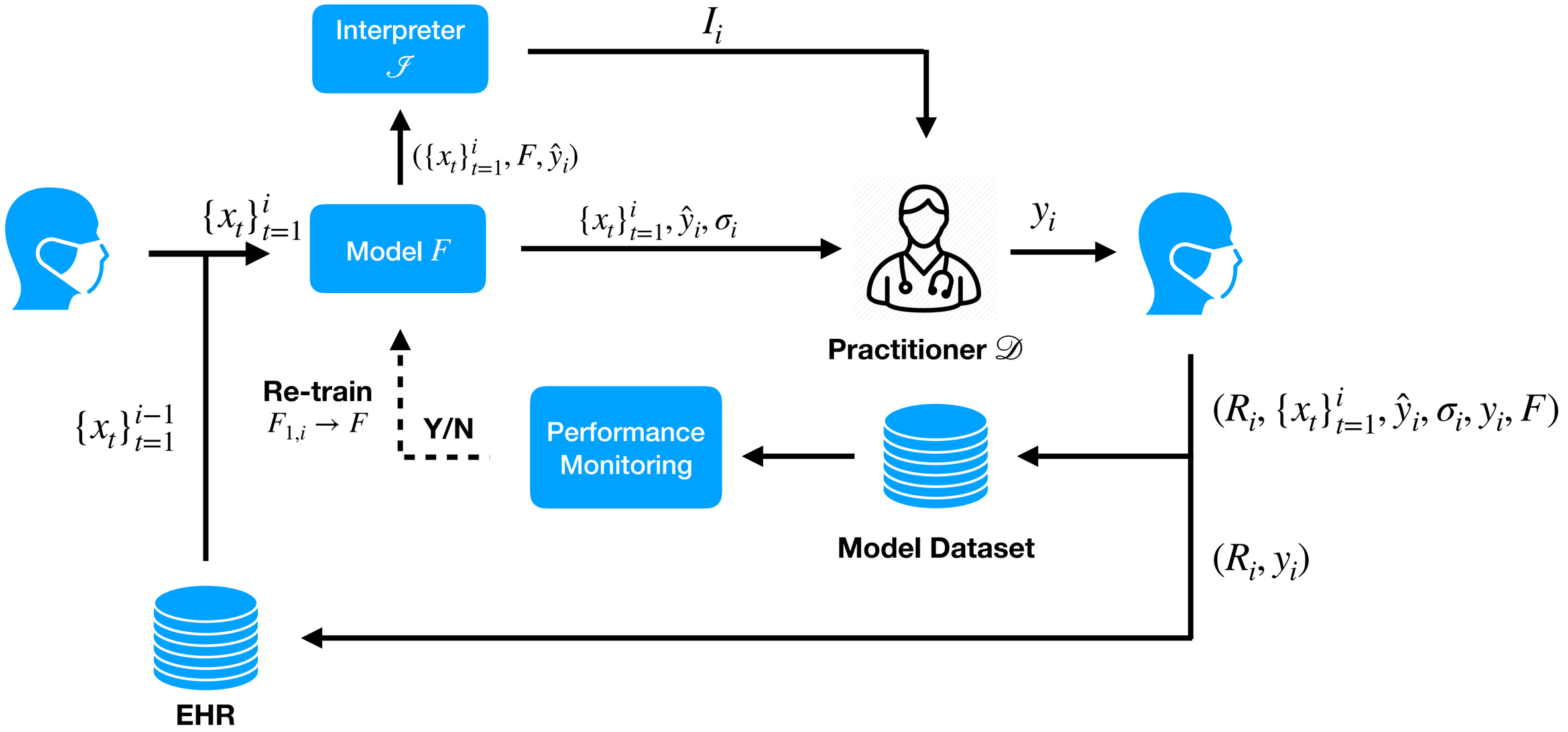
Learning Machine - Flowchart

Notations

- $F_{1,T}(\Theta_{1,T})$ - Model with parameters (weights) $\Theta_{1,T}$ trained using data from $1 \leq t \leq T$.
- i - An instant of time $t = i > T$
- $x_{1...i}$ - Patient's health record up to and at time $t = i$
- $\hat{y}_i, \sigma_i = F_{1,T}(x_{1...i}, \Theta_{1,T})$ - Prediction $\hat{y}_i$ and its associated uncertainty σ_i from model $F_{1,T}$.
- $\tilde{y}_i = \mathscr{D}(x_{1...i}, \hat{y}_i, \sigma_i, I_i)$ - Practitioner $\mathscr{D}$'s decision.
- $I_i = \mathscr{I}(x_{1...i}, F_{1,T}, \hat{y}_i)$ - Interpretation I_i from Interpreter $\mathscr{I}$.

Flowchart


Interpreter
$\mathcal{J}$
I_i
$(\{x_t\}_{t=1}^{i}, F, \hat{y}_i)$
$\{x_t\}_{t=1}^{i}$
Model F
$\{x_t\}_{t=1}^{i}, \hat{y}_i, \sigma_i$
y_i
Practitioner $\mathcal{D}$
Re-train
$F_{1,i} \rightarrow F$
Y/N
$\{x_t\}_{t=1}^{i-1}$
Performance Monitoring
Model Dataset
$(R_i, \{x_t\}_{t=1}^{i}, \hat{y}_i, \sigma_i, y_i, F)$
(R_i, y_i)
EHR