Text S4

Prediction Performance Metrics

We used the following two metrics for evaluating the performance of our personality prediction models:

Spearman correlation: $$(r_s) = \frac{\sum_{i=1}^{n}\left(\left(R(\gamma_i) - \overline{R(\gamma)}\right)\left(R(\hat{\gamma}_i) - \overline{R(\hat{\gamma})}\right)\right)}{\sqrt{\sum_{i=1}^{n}\left(R(\gamma_i) - \overline{R(\gamma)}\right)^2 \sum_{i=1}^{n}\left(R(\hat{\gamma}_i) - \overline{R(\hat{\gamma})}\right)^2}}$$

Mean Squared Error: $$(MSE) = \frac{1}{n}\sum_{i=1}^{n}\left(\gamma_i - \hat{\gamma}_i\right)^2$$

Where:

$R(\gamma_i)$: rank of the true criterion value for the observation i

$\overline{R(\gamma)}$: mean rank of the criterion value

$R(\hat{\gamma}_i)$: rank of the predicted criterion value for the observation i

$\overline{R(\hat{\gamma})}$: mean rank of the predicted criterion value

γ_i: true criterion value for the observation i

$\hat{\gamma}_i$: predicted criterion value for the observation i