

Evaluating numeric prediction

p - predicted values

a - actual values

Performance measure	Formula
mean-squared error	$\frac{(p_1 - a_1)^2 + \dots + (p_n - a_n)^2}{n}$
root mean-squared error	$\sqrt{\frac{(p_1 - a_1)^2 + \dots + (p_n - a_n)^2}{n}}$
mean absolute error	$\frac{ p_1 - a_1 + \dots + p_n - a_n }{n}$
relative squared error	$\frac{(p_1 - a_1)^2 + \dots + (p_n - a_n)^2}{(a_1 - \bar{a})^2 + \dots + (a_n - \bar{a})^2}, \text{ where } \bar{a} = \frac{1}{n} \sum_i a_i$
root relative squared error	$\sqrt{\frac{(p_1 - a_1)^2 + \dots + (p_n - a_n)^2}{(a_1 - \bar{a})^2 + \dots + (a_n - \bar{a})^2}}$
relative absolute error	$\frac{ p_1 - a_1 + \dots + p_n - a_n }{ a_1 - \bar{a} + \dots + a_n - \bar{a} }$
correlation coefficient	$\frac{S_{PA}}{\sqrt{S_P S_A}}, \text{ where } S_{PA} = \frac{\sum_i (p_i - \bar{p})(a_i - \bar{a})}{n-1},$ $S_P = \frac{\sum_i (p_i - \bar{p})^2}{n-1}, \text{ and } S_A = \frac{\sum_i (a_i - \bar{a})^2}{n-1}$

Age	Height	Baseline	pi-ai	Linear regression	pi-ai	Regression tree	pi-ai	Model tree	pi-ai	kNN	pi-ai
2	0.85	1.63	0.78	1.43	0.58	1.39	0.54	1.20	0.35	1.00	0.15
10	1.4	1.63	0.23	1.47	0.07	1.46	0.06	1.47	0.07	1.44	0.04
35	1.7	1.63	-0.07	1.61	-0.09	1.71	0.01	1.71	0.01	1.67	-0.03
70	1.6	1.63	0.03	1.81	0.21	1.71	0.11	1.75	0.15	1.77	0.17
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