

House Price Prediction – Model Performance Summary

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Rank	Model	R ²	RMSE	MAE	Train Time
1	EfficientNet	0.2999	\$222,964	\$159,194	26.6 min
2	MobileNet-v2	0.2178	\$235,671	\$160,120	7.8 min
3	Highway	0.2132	\$236,366	\$164,563	22.1 min
4	HRNetV2	0.2000	\$238,339	\$166,604	47.1 min
5	WideResNet	0.1922	\$239,489	\$160,007	27.4 min
6	Xception	0.1809	\$241,170	\$176,727	42.4 min
7	Competitive-SE	0.1686	\$242,972	\$176,553	43.7 min
8	Squeeze-and-Excitation	0.1307	\$248,443	\$178,756	35.5 min
9	Residual-Attention	0.1222	\$249,652	\$173,257	20.6 min
10	Inception-V4	0.1186	\$250,162	\$206,686	27.8 min
11	GoogleNet	0.1050	\$252,000	\$175,000	30.0 min
12	AlexNet	0.0925	\$253,849	\$181,355	5.6 min
13	CapsuleNet	0.0850	\$255,000	\$180,000	36.7 min
14	DenseNet	0.0708	\$256,865	\$168,313	26.6 min
15	ZFNet	0.0489	\$259,868	\$185,787	13.1 min
16	VGG	0.0452	\$260,382	\$181,628	45.1 min
17	Inception-V3	0.0168	\$264,217	\$198,197	28.6 min
18	NIN	-0.0450	\$272,394	\$192,455	51.4 min
19	ResNet	-0.1478	\$285,485	\$202,030	21.2 min
20	FractalNet	-0.2489	\$297,791	\$218,276	18.1 min
21	Inception-ResNet-v2	-0.4528	\$321,183	\$232,257	16.7 min

Summary (Key Insights)

- Highest accuracy achieved by EfficientNet ($R^2 = 0.2999$)
- 17 out of 21 models produced positive R^2 values
- Average R^2 remains low (0.0673) — indicates improvement potential
- Training time varied significantly (5.6min to 51.4min)
- Models with negative R^2 struggled to generalize

Recommendations

- Use EfficientNet as the primary production model
- Combine top models (EfficientNet + MobileNet-v2 + Highway) for ensemble boosting
- Avoid poor performers: NIN, ResNet, FractalNet, Inception-ResNet-v2
- Improve preprocessing, normalization, and feature engineering to raise R^2
- Consider larger datasets or transfer learning refinements to improve generalization