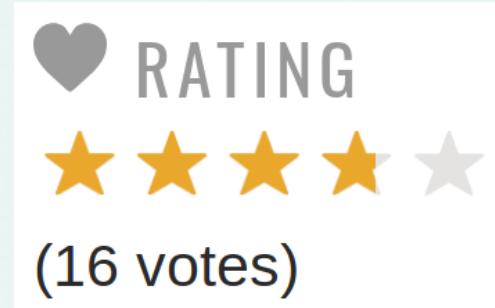


Predicting a Hike's Rating

Spencer Tollefson
October 12, 2018



- Database
- Voting system





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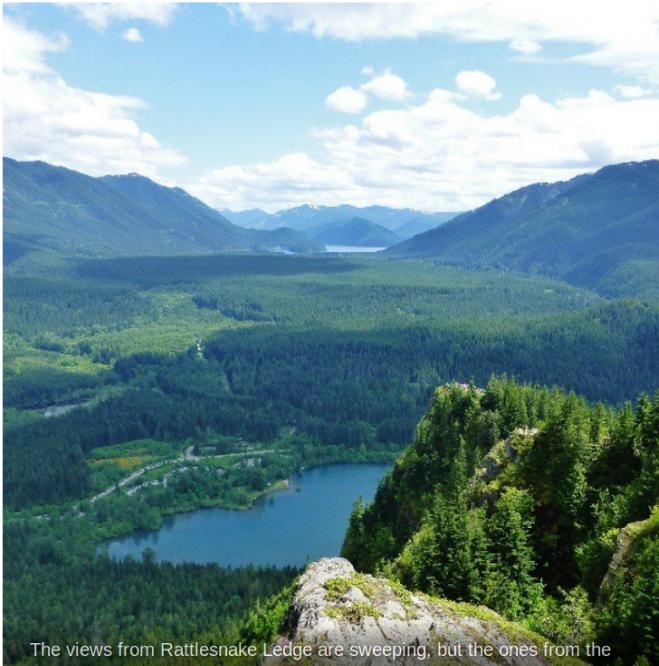


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Rattlesnake Ledge

SNOQUALMIE REGION

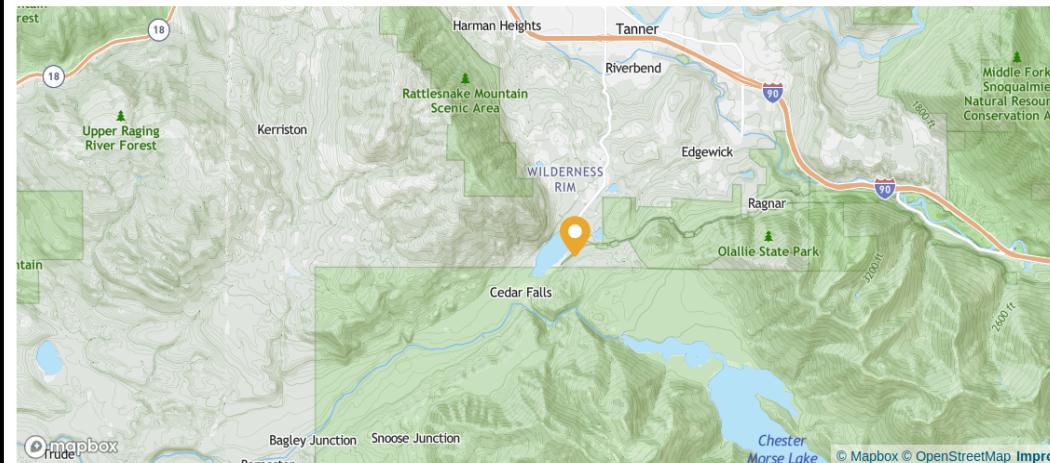


The views from Rattlesnake Ledge are sweeping, but the ones from the Upper Ledge (where this one was taken) are even better. Just be careful—it's a long way down! Photo by [@ziptiecloud](#).

This is a fine hike on a well maintained, albeit busy trail through the fo-

RATTLESNAKE LEDGE MAP & DIRECTIONS

[Save Hike to My Backlist](#)
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TRAILHEAD

Snoqualmie Region -- North Bend Area

King County Parks

[See weather forecast](#)

GUIDEBOOKS & MAPS

Day Hiking Snoqualmie Region (Nelson and Bauer - Mountaineers Books)

[Buy the Green Trails Rattlesnake Mountain No. 205S map](#)

Driving Directions

From Seattle, drive east on I-90 to exit 32 for 436th Avenue SE. Turn right on 436th Avenue SE, also signed as Cedar Falls Road SE. Proceed about four miles to the Rattlesnake Lake parking lot on the right.

Parking Pass/Entry Fee: None

Process

- Collect Data
- Train Model
- Evaluate Results



Data

3,555 total
hikes

1,015
suitable for
model

24 features

name	region	votes	rating	length	lengthtype	gain	hpoint	fee	countreports
Rattlesnake Ledge	Snoqualmie Region	294	4.050	4.000	roundtrip	1160.000	2078.000	None	1555
Lake Serene	Central Cascades	286	4.480	8.200	roundtrip	2000.000	2521.000	Northwest Forest Pass	1458
Lake 22	North Cascades	260	4.240	5.400	roundtrip	1350.000	2400.000	Northwest Forest Pass	1697



Continuous Features

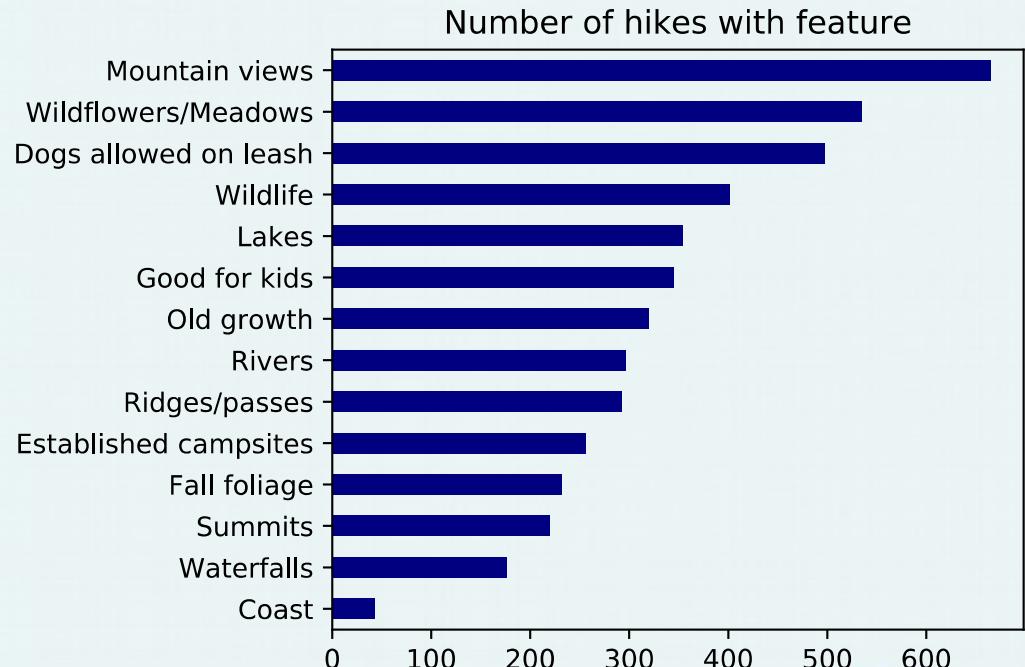
Feature	Unit
Trip Report	Count
Length	Miles
Starting Elevation	Feet
Elevation Gain	Feet

- Standardize



Categorical Features

- 11 Regions
- 7 Fee / Pass types
- 14 “Present” Features
- Dummy Variables



Process

- Collect Data
- Train Model
- Evaluate Results



Modeling

- Linear Regression
- 2nd degree polynomial
- Fairly well fit

R ² Score	Test/Train R ² Difference
.18	.06



Process

- Collect Data
- Train Model
- Evaluate Results



Conclusion

- Model is not great at predicting hikes
- Better than chance
- More data + More features = Better model



Future work

- More features
- Predict something other than ***rating***
- Predict popularity of hike on a given day

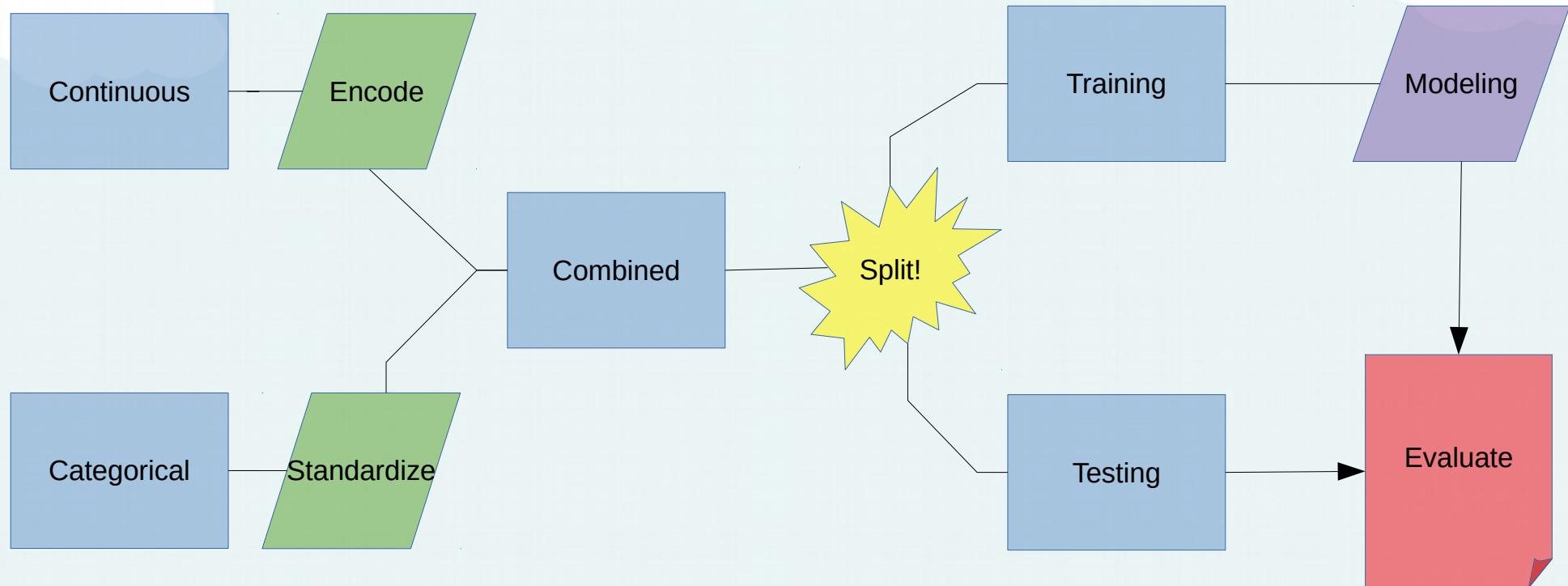


Questions?



Appendix



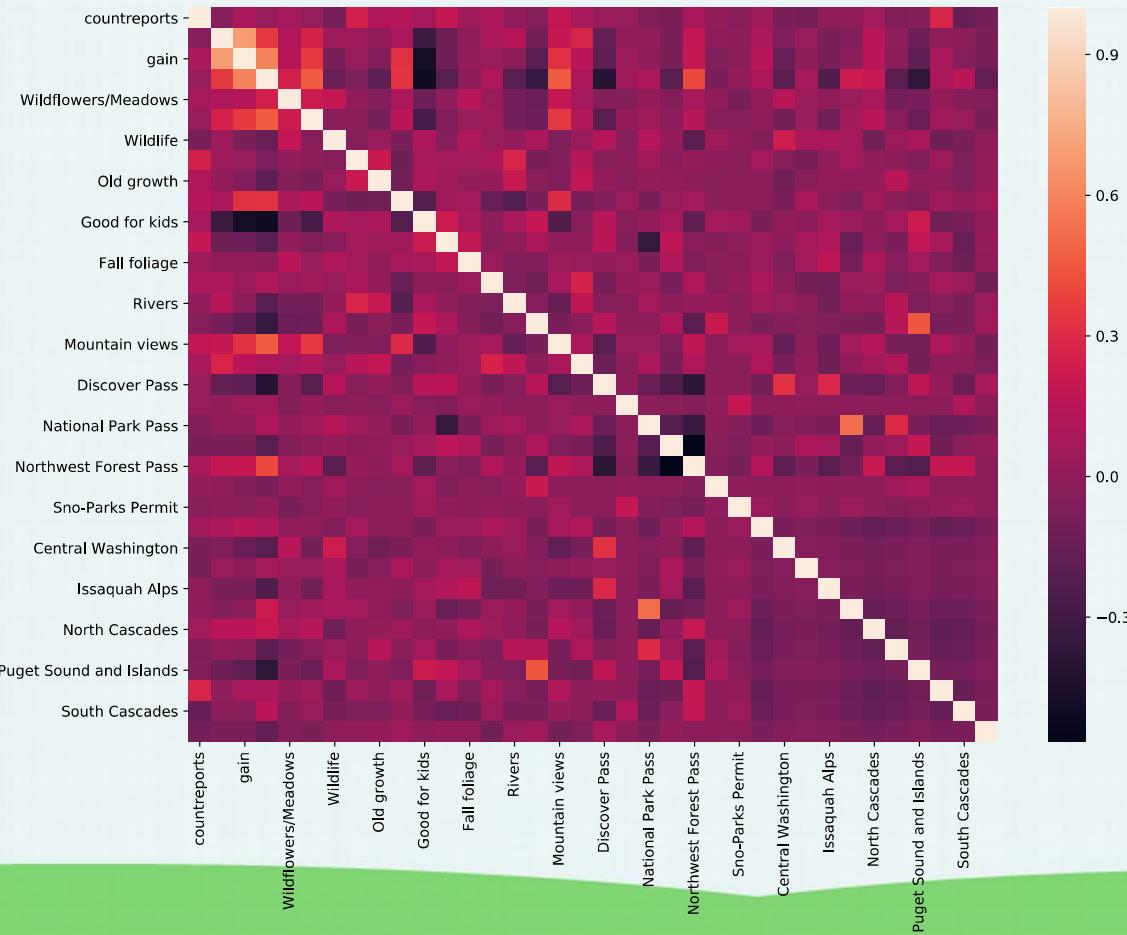


Model Results

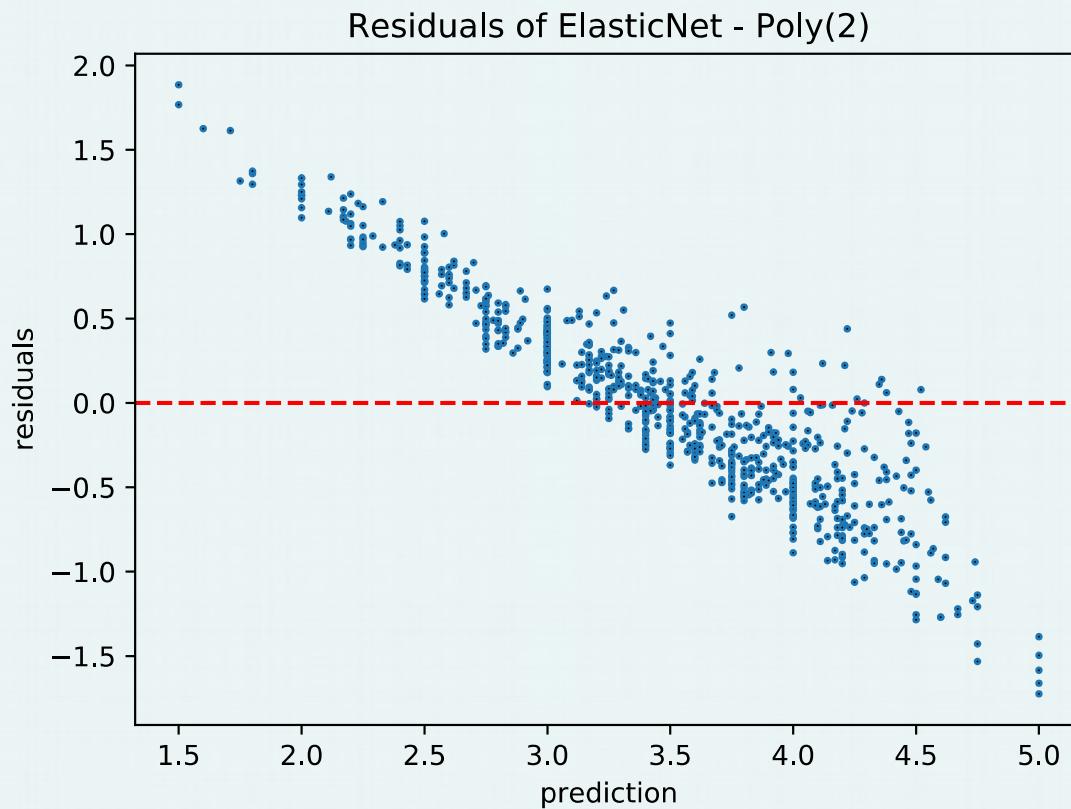
Regularization Model	Test R ² Score	Test/Train R ² Difference
Lasso	.18	.08
Ridge Regression	.16	.19
Elastic Net (L1 = 0.1)	.18	.06



Correlation Heatmap



Residual Chart



Predicted vs Actual Rating

