# **Univariate Analysis**

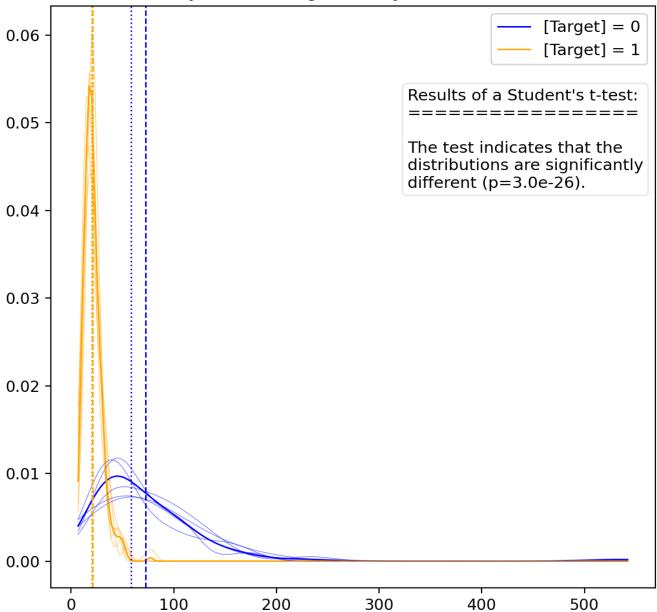
**Hit Ratio Model** 

Area Error - Results

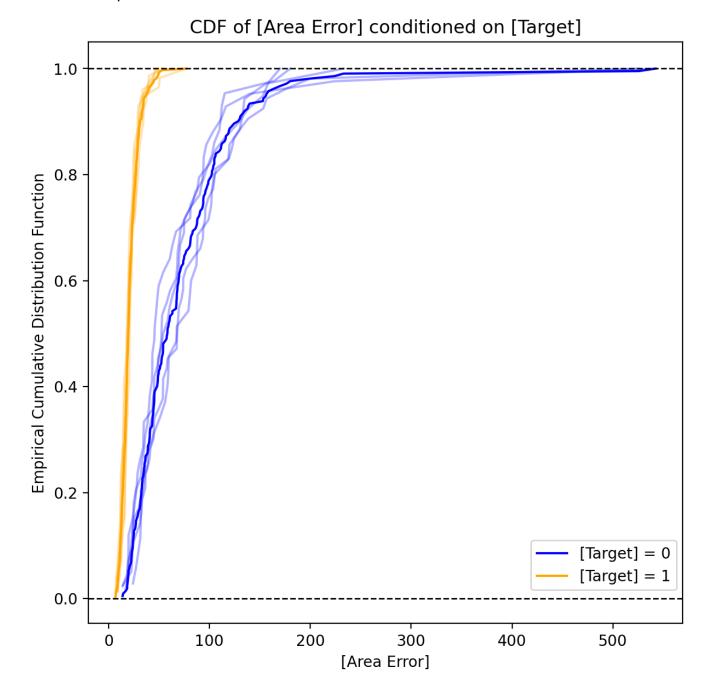
	Fold-1	Fold-2	Fold-3	Fold-4	Fold-5	Agg. Mean	Agg. SD
Fitted Coef.	-9.8e-03	-1.0e-02	-8.9e-03	-9.8e-03	-9.1e-03	-9.6e-03	5.3e-04
Fitted p-Value	1.9e-06	8.7e-07	2.9e-05	2.2e-06	5.4e-06	2.2e-07	1.2e-05
Fitted Std. Err.	2.1e-03	2.1e-03	2.1e-03	2.1e-03	2.0e-03	1.8e-03	4.3e-05
Conf. Int. Lower	-1.4e-02	-1.4e-02	-1.3e-02	-1.4e-02	-1.3e-02	-1.3e-02	5.2e-04
Conf. Int. Upper	-5.8e-03	-6.1e-03	-4.7e-03	-5.7e-03	-5.2e-03	-5.9e-03	5.5e-04
Train Accuracy	37.6%	37.8%	36.1%	38.6%	36.2%	37.3%	1.1%
Val Accuracy	35.8%	35.1%	41.1%	31.8%	42.4%	37.3%	4.4%
Train AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Val AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Train F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Test F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Log-Loss	22.48	22.43	23.02	22.14	23.01	22.61	0.38
Val Log-Loss	23.13	23.38	21.24	24.58	20.75	22.61	1.59

Area Error - Kernel Density Plot

Density Plot of [[Area Error]] by [[Target]] Distributions by level are significantly different at the 95% level.

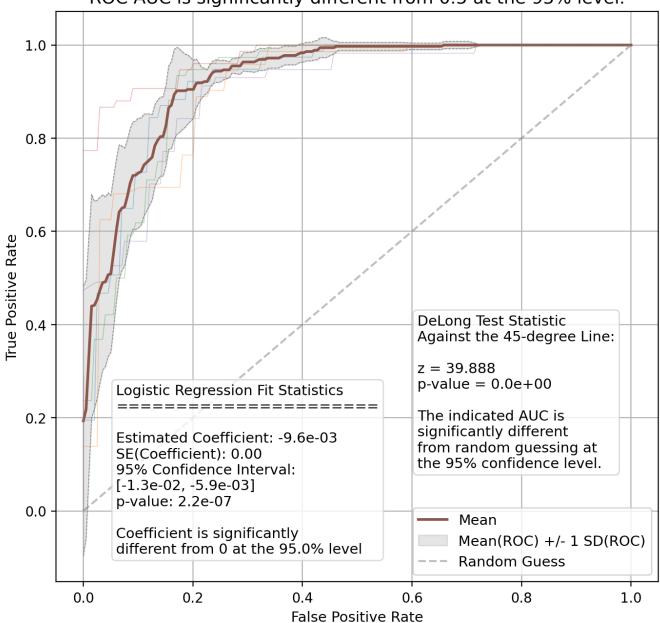


Area Error - Empirical CDF Plot

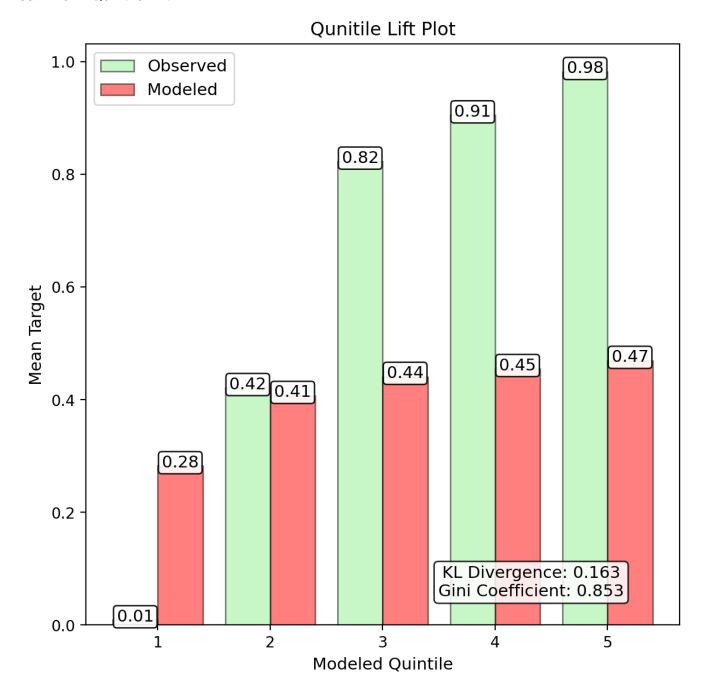


Area Error - ROC Curve

ROC Curve (AUC = 92.6%) ROC AUC is significantly different from 0.5 at the 95% level.



Area Error - Quintile Lift

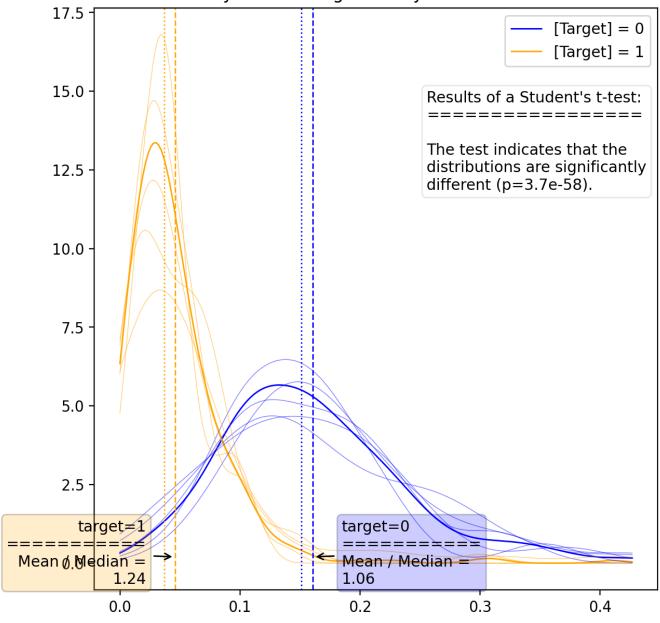


Mean Concavity - Results

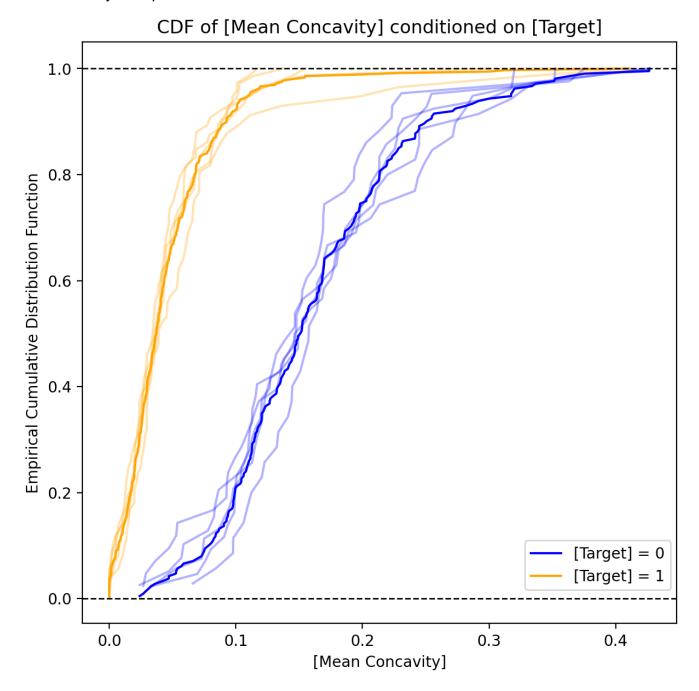
	Fold-1	Fold-2	Fold-3	Fold-4	Fold-5	Agg. Mean	Agg. SD
Fitted Coef.	-4.8e+00	-4.7e+00	-4.4e+00	-4.7e+00	-4.9e+00	-4.7e+00	2.0e-01
Fitted p-Value	9.9e-08	1.6e-07	1.6e-06	1.2e-07	7.2e-08	5.6e-09	6.6e-07
Fitted Std. Err.	0.894	0.888	0.906	0.887	0.910	0.802	0.010
Conf. Int. Lower	-6.5e+00	-6.4e+00	-6.1e+00	-6.4e+00	-6.7e+00	-6.2e+00	2.0e-01
Conf. Int. Upper	-3.0e+00	-2.9e+00	-2.6e+00	-3.0e+00	-3.1e+00	-3.1e+00	2.0e-01
Train Accuracy	37.6%	37.8%	36.1%	38.6%	36.2%	37.3%	1.1%
Val Accuracy	35.8%	35.1%	41.1%	31.8%	42.4%	37.3%	4.4%
Train AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Val AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Train F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Test F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Log-Loss	22.48	22.43	23.02	22.14	23.01	22.61	0.38
Val Log-Loss	23.13	23.38	21.24	24.58	20.75	22.61	1.59

Mean Concavity - Kernel Density Plot

Density Plot of [[Mean Concavity]] by [[Target]]
Distributions by level are significantly different at the 95% level.

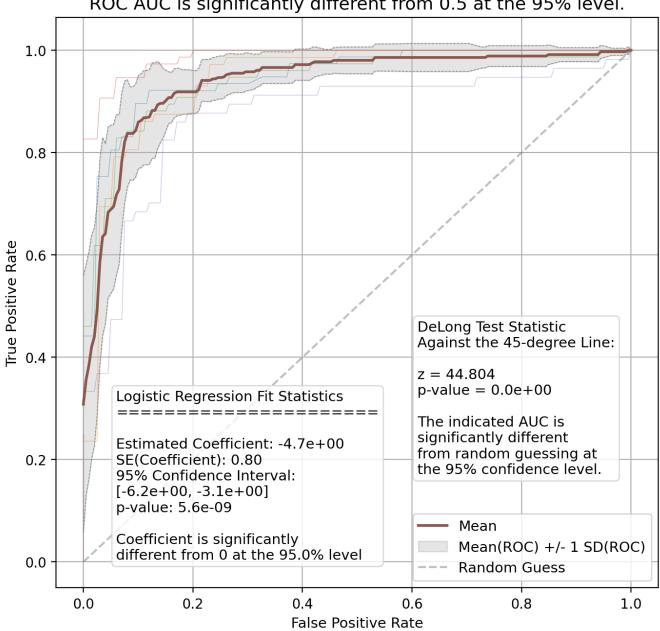


Mean Concavity - Empirical CDF Plot

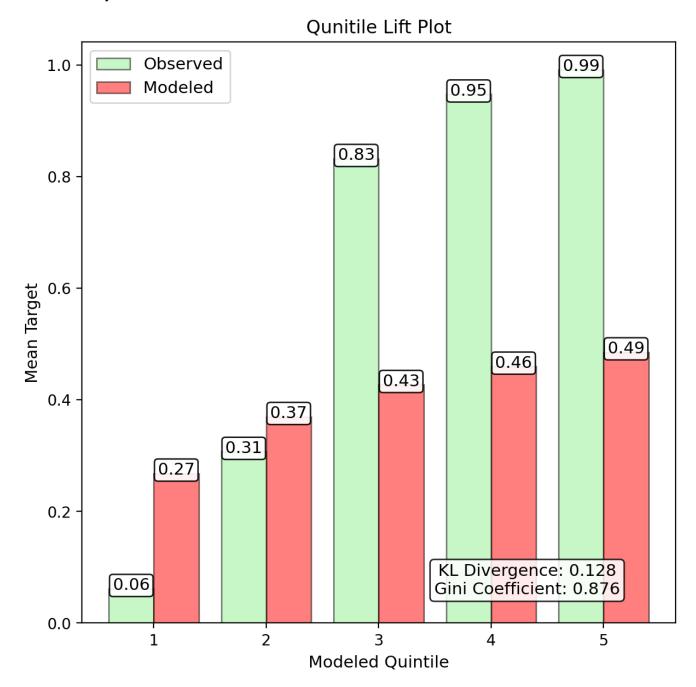


Mean Concavity - ROC Curve

ROC Curve (AUC = 93.8%) ROC AUC is significantly different from 0.5 at the 95% level.



Mean Concavity - Quintile Lift

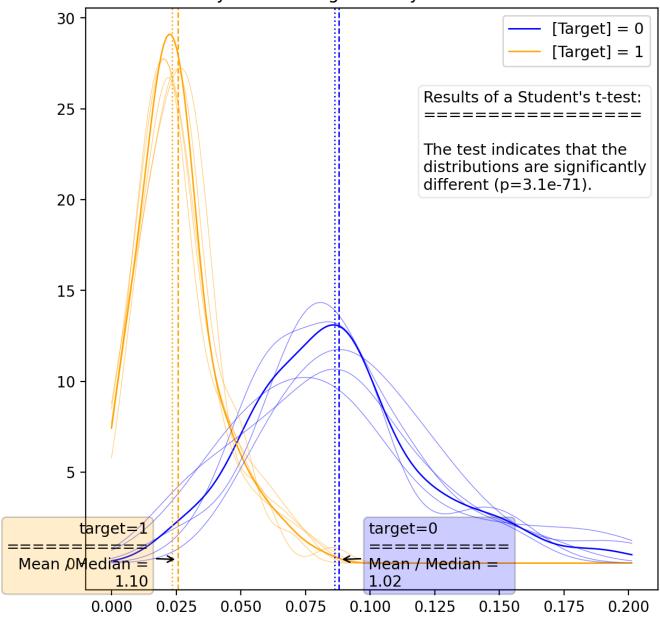


Mean Concave Points - Results

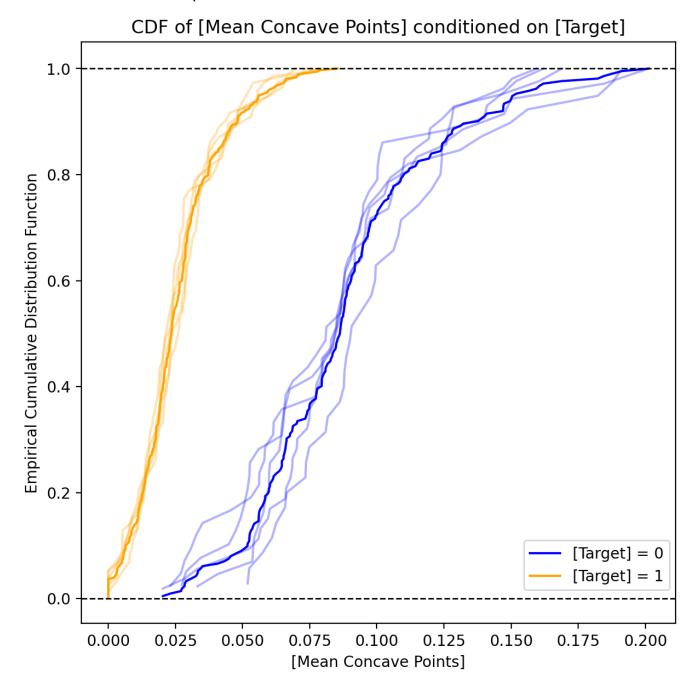
	Fold-1	Fold-2	Fold-3	Fold-4	Fold-5	Agg. Mean	Agg. SD
Fitted Coef.	-9.3e+00	-9.5e+00	-8.4e+00	-9.6e+00	-8.6e+00	-9.1e+00	5.6e-01
Fitted p-Value	4.2e-08	1.7e-08	8.7e-07	1.9e-08	2.0e-07	1.9e-09	3.7e-07
Fitted Std. Err.	1.69	1.69	1.70	1.70	1.65	1.51	0.02
Conf. Int. Lower	-1.3e+01	-1.3e+01	-1.2e+01	-1.3e+01	-1.2e+01	-1.2e+01	5.8e-01
Conf. Int. Upper	-6.0e+00	-6.2e+00	-5.0e+00	-6.2e+00	-5.3e+00	-6.1e+00	5.5e-01
Train Accuracy	37.6%	37.8%	36.1%	38.6%	36.2%	37.3%	1.1%
Val Accuracy	35.8%	35.1%	41.1%	31.8%	42.4%	37.3%	4.4%
Train AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Val AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Train F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Test F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Log-Loss	22.48	22.43	23.02	22.14	23.01	22.61	0.38
Val Log-Loss	23.13	23.38	21.24	24.58	20.75	22.61	1.59

Mean Concave Points - Kernel Density Plot

Density Plot of [[Mean Concave Points]] by [[Target]] Distributions by level are significantly different at the 95% level.

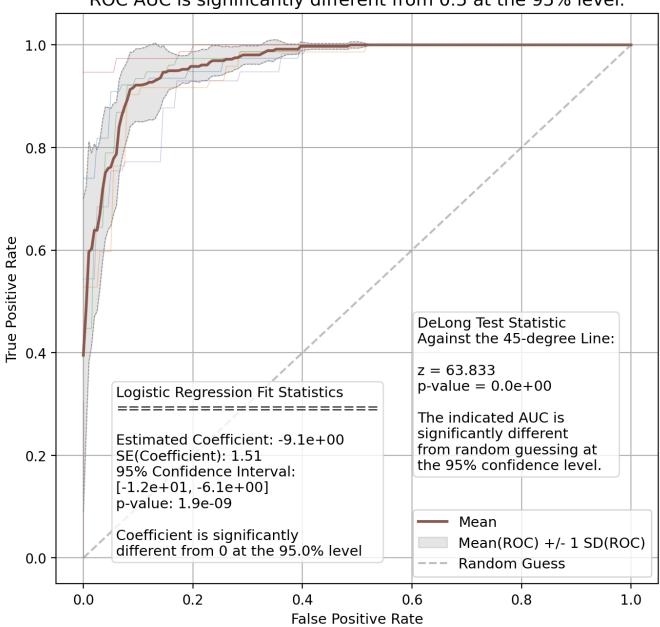


Mean Concave Points - Empirical CDF Plot

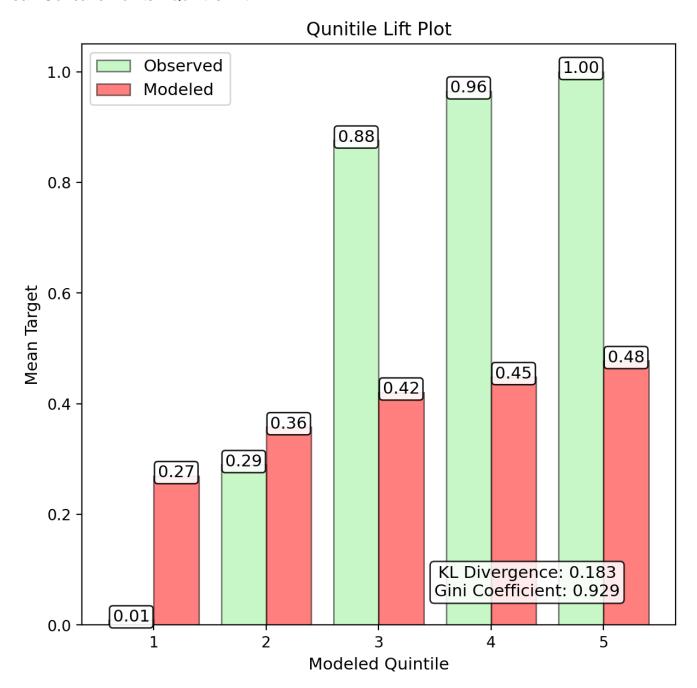


Mean Concave Points - ROC Curve

ROC Curve (AUC = 96.4%) ROC AUC is significantly different from 0.5 at the 95% level.



Mean Concave Points - Quintile Lift

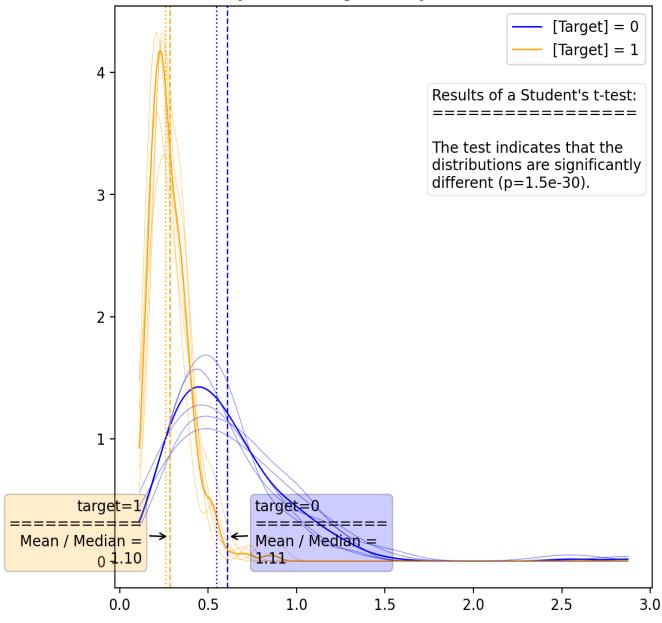


## Radius Error - Results

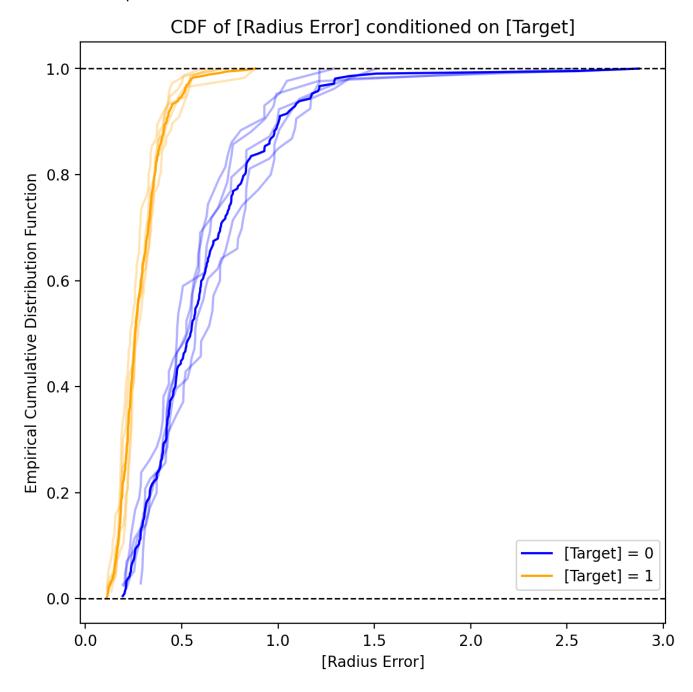
	Fold-1	Fold-2	Fold-3	Fold-4	Fold-5	Agg. Mean	Agg. SD
Fitted Coef.	-4.6e-01	-4.5e-01	-3.0e-01	-4.3e-01	-3.6e-01	-4.0e-01	7.1e-02
Fitted p-Value	1.7e-02	1.9e-02	1.5e-01	2.7e-02	6.4e-02	2.1e-02	5.6e-02
Fitted Std. Err.	0.194	0.194	0.206	0.195	0.194	0.175	0.005
Conf. Int. Lower	-8.4e-01	-8.3e-01	-7.0e-01	-8.1e-01	-7.4e-01	-7.5e-01	6.3e-02
Conf. Int. Upper	-8.2e-02	-7.4e-02	1.1e-01	-4.9e-02	2.0e-02	-6.0e-02	7.9e-02
Train Accuracy	37.6%	37.8%	36.1%	38.6%	36.2%	37.3%	1.1%
Val Accuracy	35.8%	35.1%	41.1%	31.8%	42.4%	37.3%	4.4%
Train AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Val AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Train F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Test F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Log-Loss	22.48	22.43	23.02	22.14	23.01	22.61	0.38
Val Log-Loss	23.13	23.38	21.24	24.58	20.75	22.61	1.59

Radius Error - Kernel Density Plot

Density Plot of [[Radius Error]] by [[Target]]
Distributions by level are significantly different at the 95% level.

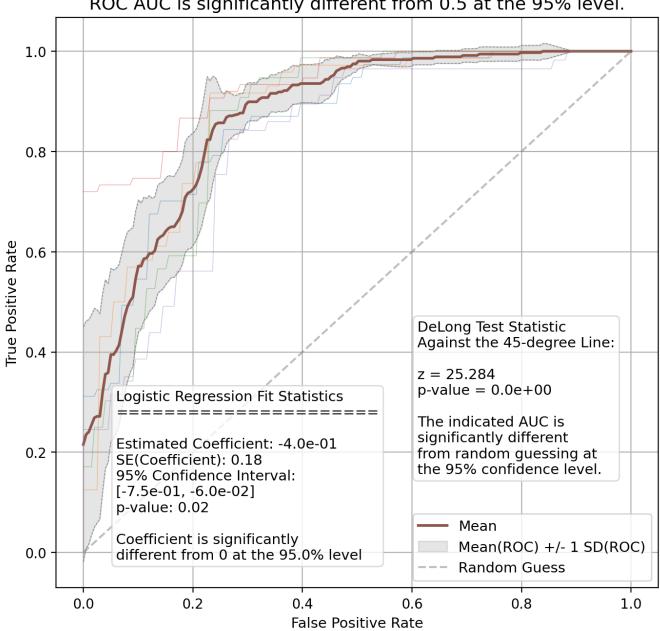


Radius Error - Empirical CDF Plot

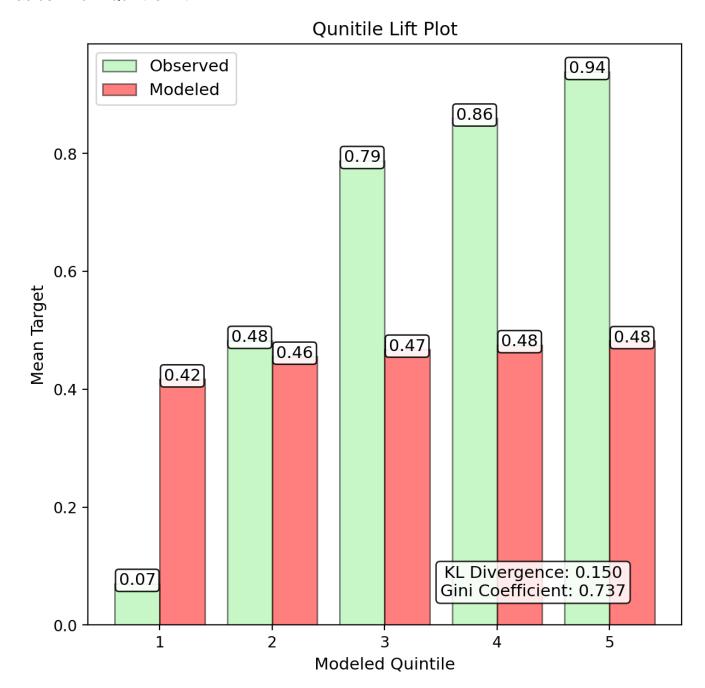


Radius Error - ROC Curve

ROC Curve (AUC = 86.8%) ROC AUC is significantly different from 0.5 at the 95% level.



Radius Error - Quintile Lift

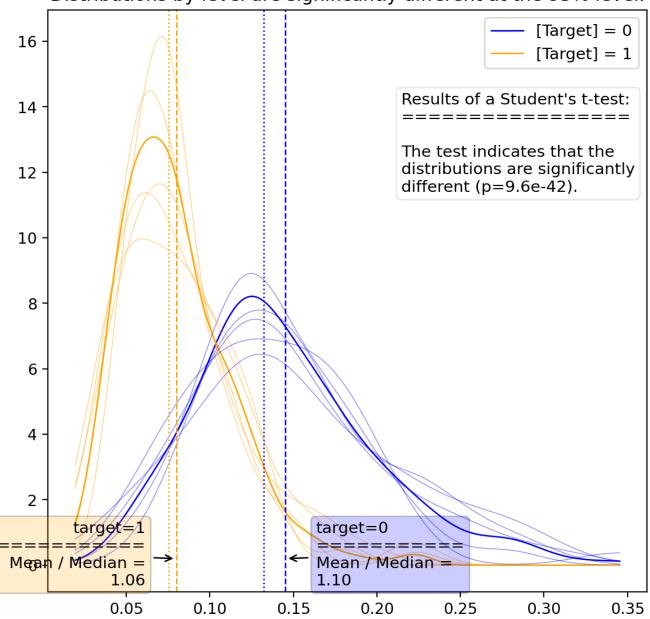


# Mean Compactness - Results

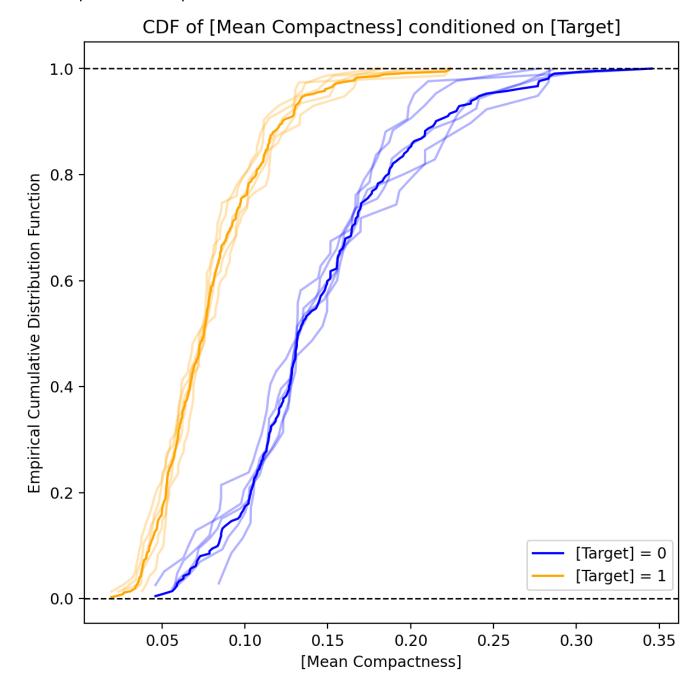
	Fold-1	Fold-2	Fold-3	Fold-4	Fold-5	Agg. Mean	Agg. SD
Fitted Coef.	-7.4e-01	-6.5e-01	-2.0e-01	-8.2e-01	-3.3e-01	-5.5e-01	2.7e-01
Fitted p-Value	0.355	0.419	0.806	0.301	0.677	0.442	0.219
Fitted Std. Err.	0.802	0.802	0.824	0.797	0.791	0.718	0.012
Conf. Int. Lower	-2.3e+00	-2.2e+00	-1.8e+00	-2.4e+00	-1.9e+00	-2.0e+00	2.6e-01
Conf. Int. Upper	0.830	0.924	1.412	0.738	1.220	0.855	0.282
Train Accuracy	37.6%	37.8%	36.1%	38.6%	36.2%	37.3%	1.1%
Val Accuracy	35.8%	35.1%	41.1%	31.8%	42.4%	37.3%	4.4%
Train AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Val AUC	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%
Train F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Test F1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Precision	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val Recall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Val MCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Train Log-Loss	22.48	22.43	23.02	22.14	23.01	22.61	0.38
Val Log-Loss	23.13	23.38	21.24	24.58	20.75	22.61	1.59

Mean Compactness - Kernel Density Plot

Density Plot of [[Mean Compactness]] by [[Target]] Distributions by level are significantly different at the 95% level.

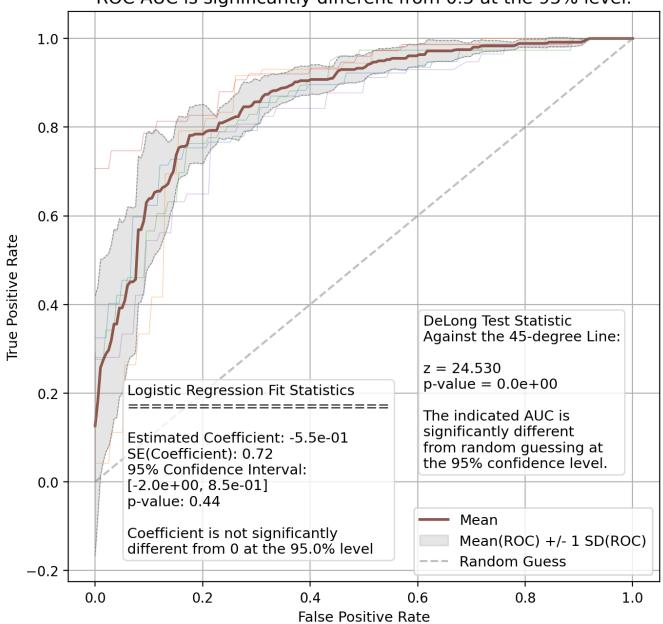


Mean Compactness - Empirical CDF Plot



Mean Compactness - ROC Curve

ROC Curve (AUC = 86.4%) ROC AUC is significantly different from 0.5 at the 95% level.



Mean Compactness - Quintile Lift

