Target Absent (sorted)

0.134	0.776	1.066	1.296	1.665	1.989	2.816
0.249	0.808	1.079	1.353	1.694	2.069	2.832
0.367	0.826	1.091	1.382	1.861	2.227	2.891
0.439	0.847	1.103	1.412	1.871	2.243	2.968
0.449	0.857	1.143	1.448	1.873	2.450	3.014
0.459	0.872	1.184	1.484	1.873	2.483	3.068
0.530	0.936	1.195	1.488	1.882	2.498	3.162
0.586	0.946	1.226	1.519	1.936	2.520	3.256
0.619	1.028	1.288	1.523	1.959	2.542	3.651
0.766	1.028	1.291	1.533	1.985	2.789	3.776

Target Present (sorted)

0.867	2.080	2.545	2.998	3.289	3.728
0.923	2.103	2.596	3.012	3.325	3.742
1.135	2.216	2.609	3.058	3.357	3.815
1.579	2.235	2.613	3.074	3.384	3.899
1.798	2.248	2.626	3.099	3.390	3.990
1.845	2.278	2.652	3.150	3.399	4.067
1.859	2.288	2.652	3.179	3.424	4.146
1.999	2.340	2.674	3.218	3.509	4.179
2.019	2.414	2.701	3.239	3.612	4.370
2.034	2.425	2.762	3.271	3.707	5.958

midpoint =

   2.1027

intersection =

   2.0335

Target Absent

	h	DoF	chi_squared_stat	p_valuea
Weibull	0	4	3.6684	0.45274
Nakagami	0	4	3.6423	0.45658
Gamma	0	4	4.5003	0.34252
Rician	0	4	3.8865	0.42159
Rayleigh	0	5	3.8747	0.56759
Lognormal	0	4	8.1169	0.08739

Best fit Rayleigh

Target Present

	h	DoF	chi_squared_stat	p_value
Weibull	0	3	2.9696	0.39634
Nakagami	0	3	3.8064	0.28314
Gamma	0	3	5.9474	0.1142
Rician	0	3	2.6022	0.4571
Rayleigh	1	5	26.855	6.0884e-05
Lognormal	1	3	9.591	0.022383

Best fit Rician
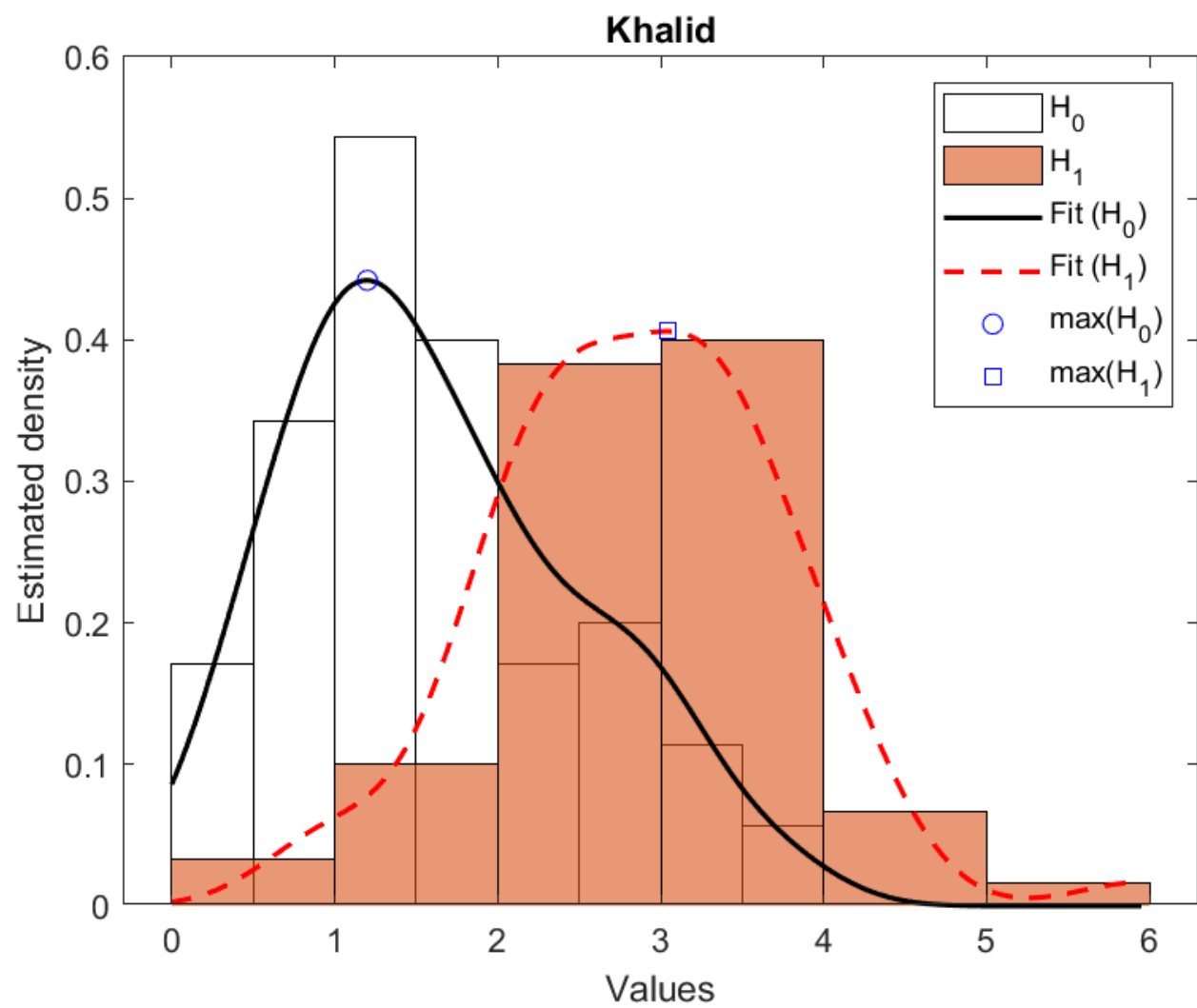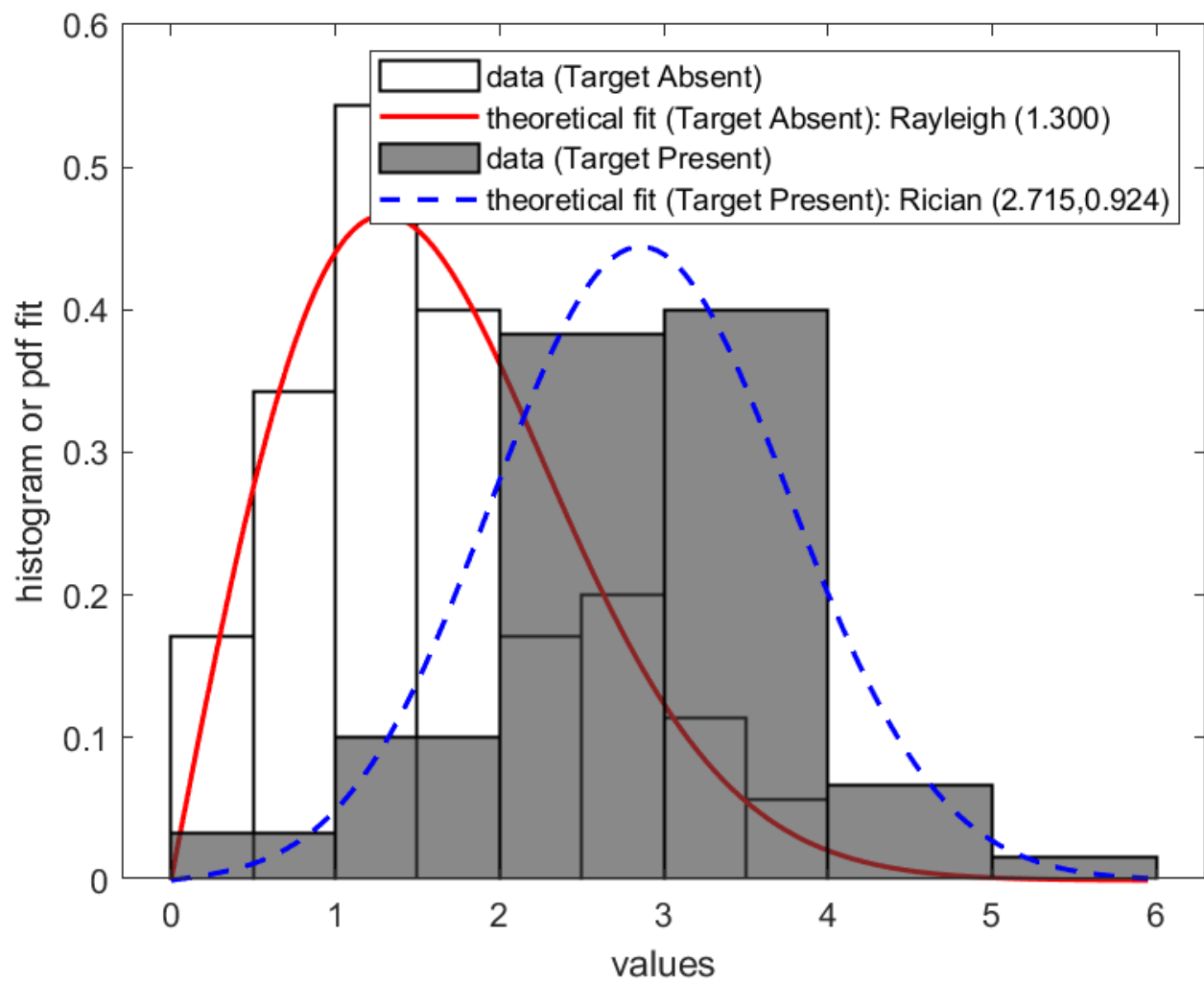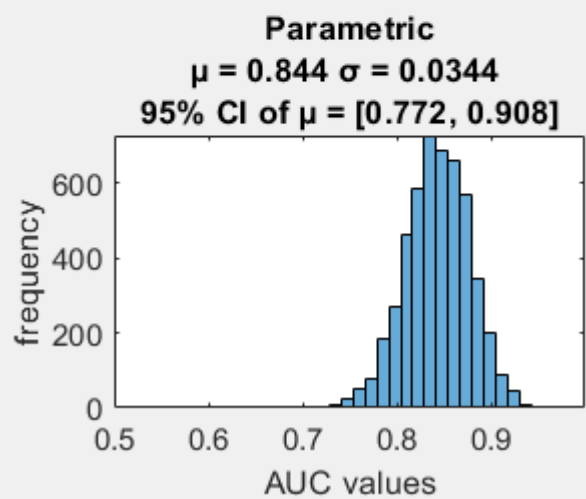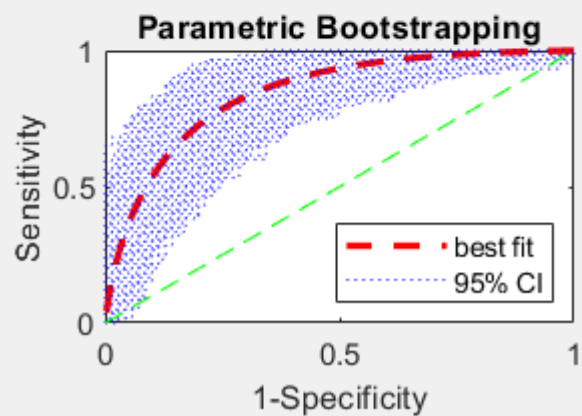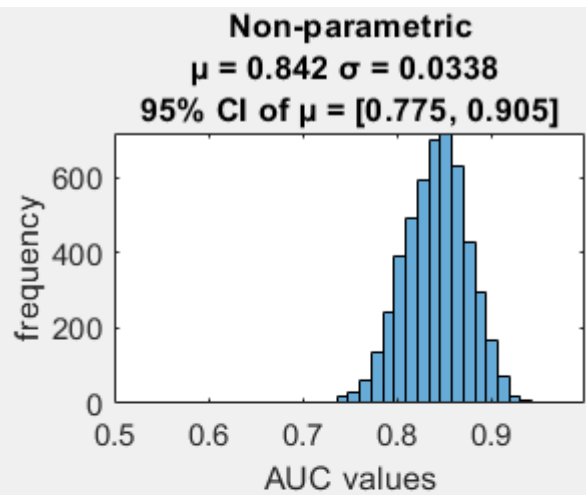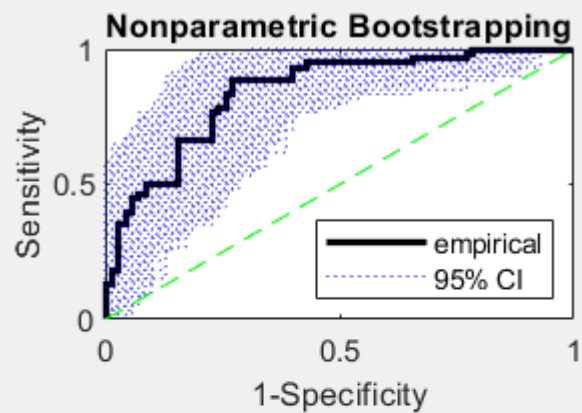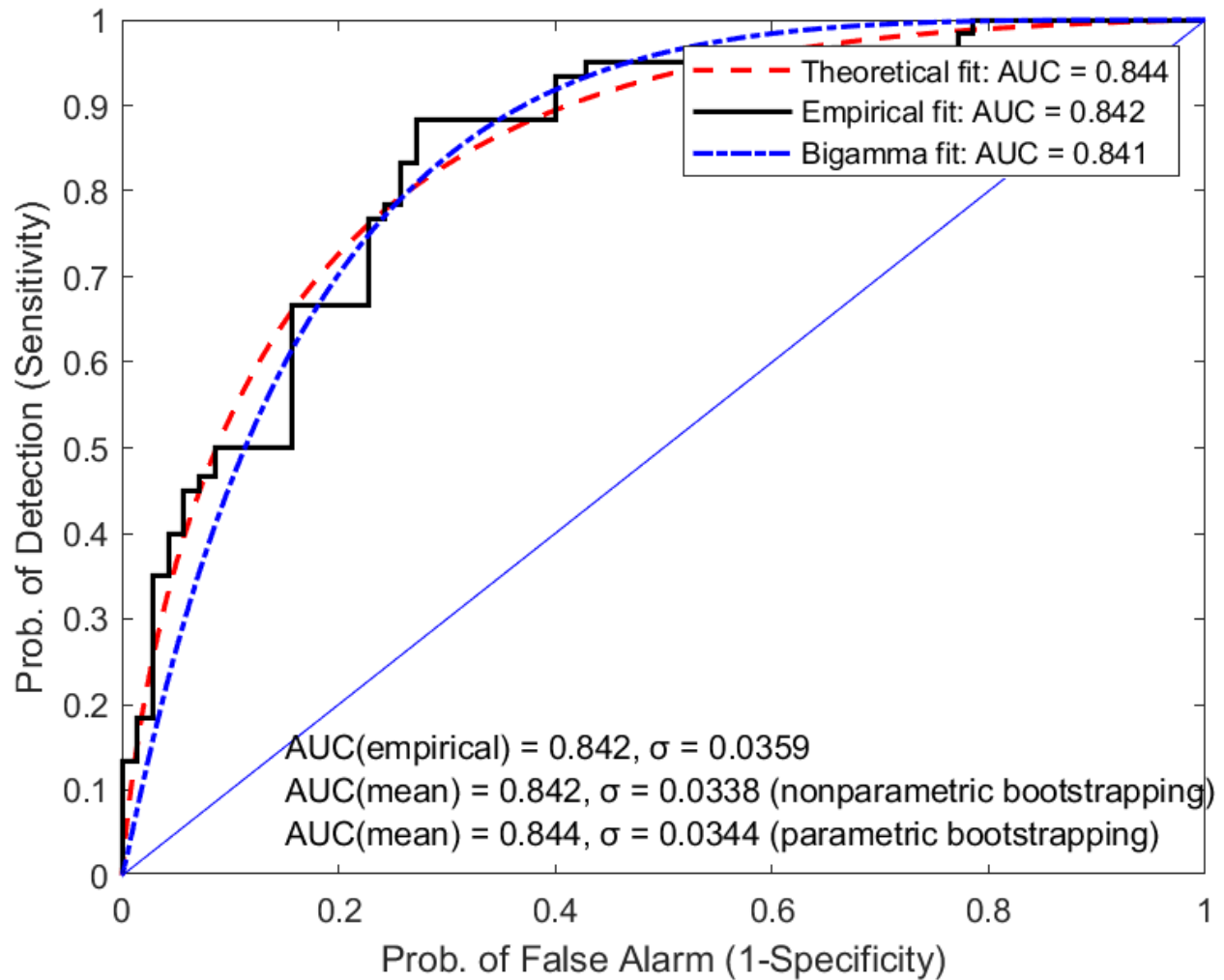
The analysis indicates that the Rayleigh distribution best fits the Target Absent (H0) data, while the Rician distribution best fits the Target Present (H1) data, as evidenced by the highest p-values from chi-squared goodness-of-fit tests. Visualized histograms, overlaid with their respective theoretical curves, confirm these fits. Bootstrapping results show that parametric bootstrapping yields a slightly higher mean and a lower standard deviation than non-parametric bootstrapping, suggesting more precise parameter estimation. Additionally, the area under the curve (AUC) values from parametric methods demonstrate marginally better model performance. Overall, these findings underscore the robustness of the Rayleigh and Rician distributions in modeling the respective target conditions.