Supplementary Material for "Heuslerene Autoencoder"

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1 Code Availability

All code referenced can be found at https://github.com/HexagonalExpanse/heuslerene-autoencoder. To access the trained models, please email me.

2 Autoencoder Error

In this section, we provide the Training Loss and Validation Loss for each autoencoder.

Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
18	1	1	30	0.000000	0.3094	None
18	1	1	30	1.000000	0.3081	0.38218894600868225
18	1	1	30	5.000000	0.3506	0.3544214069843292
18	1	1	60	0.000000	0.2056	None
18	1	1	60	1.000000	0.2093	0.6722762584686279
18	1	1	60	5.000000	0.2778	0.4269982874393463
18	1	1	90	0.000000	0.1321	None
18	1	1	90	1.000000	0.1466	1.0072273015975952
18	1	1	90	5.000000	0.1871	0.6107063889503479
18	1	1	120	0.000000	0.0886	None
18	1	1	120	1.000000	0.1099	1.2886884212493896
18	1	1	120	5.000000	0.1247	0.8099462985992432
18	1	2	30	0.000000	0.4192	None
18	1	2	30	1.000000	0.4139	0.5115206837654114
18	1	2	30	5.000000	0.4684	0.4779545068740845
18	1	2	60	0.000000	0.2941	None
18	1	2	60	1.000000	0.3106	0.8799554109573364
18	1	2	60	5.000000	0.3590	0.586802065372467
18	1	2	90	0.000000	0.2155	None

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Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
18	1	2	90	1.000000	0.2417	1.2611616849899292
18	1	2	90	5.000000	0.2649	0.7698348164558411
18	1	2	120	0.000000	0.1540	None
18	1	2	120	1.000000	0.2076	1.664066195487976
18	1	2	120	5.000000	0.1895	1.0738353729248047
18	1	3	30	0.000000	0.4666	None
18	1	3	30	1.000000	0.4683	0.568331241607666
18	1	3	30	5.000000	0.5161	0.5274757742881775
18	1	3	60	0.000000	0.3268	None
18	1	3	60	1.000000	0.3444	0.9650474786758423
18	1	3	60	5.000000	0.4199	0.6211012005805969
18	1	3	90	0.000000	0.2245	None
18	1	3	90	1.000000	0.2684	1.39756178855896
18	1	3	90	5.000000	0.3028	0.843194842338562
18	1	3	120	0.000000	0.1751	None
18	1	3	120	1.000000	0.2383	1.771884799003601
18	1	3	120	5.000000	0.2225	1.1154359579086304
18	2	1	30	0.000000	0.2889	None
18	2	1	30	1.000000	0.2926	0.38192734122276306
18	2	1	30	5.000000	0.3395	0.33617979288101196
18	2	1	60	0.000000	0.1869	None
18	2	1	60	1.000000	0.1915	0.5963510870933533
18	2	1	60	5.000000	0.2659	0.38642418384552
18	2	1	90	0.000000	0.1103	None
18	2	1	90	1.000000	0.1358	1.1001800298690796
18	2	1	90	5.000000	0.2012	0.48858675360679626
18	2	1	120	0.000000	0.0955	None
18	2	1	120	1.000000	0.1159	1.260558843612671
18	2	1	120	5.000000	0.1100	0.8888605237007141
18	2	2	30	0.000000	0.3735	None
18	2	2	30	1.000000	0.3785	0.5205169320106506
18	2	2	30	5.000000	0.4432	0.4550746977329254
18	2	2	60	0.000000	0.2411	None
18	2	2	60	1.000000	0.2381	0.904492974281311
18	2	2	60	5.000000	0.3448	0.526526689529419
18	2	2	90	0.000000	0.1573	None
18	2	2	90	1.000000	0.1734	1.3376340866088867
18	2	2	90	5.000000	0.2817	0.6680379509925842
18	2	2	120	0.000000	0.1104	None
18	2	2	120	1.000000	0.1461	1.613133430480957
18	2	2	120	5.000000	0.1608	1.1686921119689941
18	2	3	30	0.000000	0.4116	None
18	2	3	30	1.000000	0.4368	0.6088232398033142
18	2	3	30	5.000000	0.4943	0.50616055727005

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Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
18	2	3	60	0.000000	0.2907	None
18	2	3	60	1.000000	0.2897	0.9558258056640625
18	2	3	60	5.000000	0.3650	0.6181804537773132
18	2	3	90	0.000000	0.2110	None
18	2	3	90	1.000000	0.2242	1.3134491443634033
18	2	3	90	5.000000	0.3890	0.892384946346283
18	2	3	120	0.000000	0.1601	None
18	2	3	120	1.000000	0.1950	1.7455236911773682
18	2	3	120	5.000000	0.2411	1.1376060247421265
18	3	1	30	0.000000	0.2858	None
18	3	1	30	0.000000	0.3103	None
18	3	1	30	1.000000	0.2833	0.3236325681209564
18	3	1	30	5.000000	0.3610	0.3534037172794342
18	3	1	60	0.000000	0.1947	None
18	3	1	60	1.000000	0.2095	0.776183545589447
18	3	1	60	5.000000	0.2621	0.3225955367088318
18	3	1	90	0.000000	0.1177	None
18	3	1	90	1.000000	0.1163	0.8646888136863708
18	3	1	90	5.000000	0.2011	0.4188325107097626
18	3	1	120	0.000000	0.0785	None
18	3	1	120	1.000000	0.0836	1.0365384817123413
18	3	1	120	5.000000	0.1510	0.5695741176605225
18	3	2	30	0.000000	0.3765	None
18	3	2	30	1.000000	0.3809	0.4732896387577057
18	3	2	30	5.000000	0.4486	0.4421553909778595
18	3	2	60	0.000000	0.2592	None
18	3	2	60	1.000000	0.2383	0.7155189514160156
18	3	2	60	5.000000	0.3621	0.4760846793651581
18	3	2	90	0.000000	0.1353	None
18	3	2	90	1.000000	0.1730	1.089398980140686
18	3	2	90	5.000000	0.2851	0.5927250981330872
18	3	2	120	0.000000	0.0879	None
18	3	2	120	1.000000	0.1355	1.3563311100006104
18	3	2	120	5.000000	0.2359	0.7952666282653809
18	3	3	30	0.000000	0.4323	None
18	3	3	30	1.000000	0.4535	0.4935978651046753
18	3	3	30	5.000000	0.5107	0.5085644721984863
18	3	3	60	0.000000	0.2302	None
18	3	3	60	1.000000	0.2786	0.6209237575531006
18	3	3	60	5.000000	0.4930	0.6787441968917847
18	3	3	90	0.000000	0.1609	None
18	3	3	90	1.000000	0.2152	0.996091365814209
18	3	3	90	5.000000	0.3484	0.7272492051124573
18	3	3	120	0.000000	0.1280	None

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Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
18	3	3	120	1.000000	0.2026	1.8537284135818481
18	3	3	120	5.000000	0.3603	1.0235658884048462
50	1	1	30	0.000000	0.3156	None
50	1	1	30	1.000000	0.2848	0.41377556324005127
50	1	1	30	5.000000	0.4122	0.40479138493537903
50	1	1	60	0.000000	0.1834	None
50	1	1	60	1.000000	0.2096	0.6510169506072998
50	1	1	60	5.000000	0.3936	0.39132145047187805
50	1	1	90	0.000000	0.1536	None
50	1	1	90	1.000000	0.1381	0.8937192559242249
50	1	1	90	5.000000	0.1705	0.5420768857002258
50	1	1	120	0.000000	0.0868	None
50	1	1	120	1.000000	0.1075	1.0387340784072876
50	1	1	120	5.000000	0.1138	0.6874560117721558
50	1	2	30	0.000000	0.4690	None
50	1	2	30	1.000000	0.4780	0.5088822245597839
50	1	2	30	5.000000	0.5253	0.5305496454238892
50	1	2	60	0.000000	0.2282	None
50	1	2	60	1.000000	0.3484	0.6937747001647949
50	1	2	60	5.000000	0.5505	0.6412026286125183
50	1	2	90	0.000000	0.1527	None
50	1	2	90	1.000000	0.2348	1.162788987159729
50	1	2	90	5.000000	0.2994	0.6480017304420471
50	1	2	120	0.000000	0.0907	None
50	1	2	120	1.000000	0.2143	1.3236539363861084
50	1	2	120	5.000000	0.1847	0.835904598236084
50	1	3	30	0.000000	0.5371	None
50	1	3	30	1.000000	0.4615	0.5981055498123169
50	1	3	30	5.000000	0.5566	0.5629472732543945
50	1	3	60	0.000000	0.2685	None
50	1	3	60	1.000000	0.3373	0.8435317277908325
50	1	3	60	5.000000	0.5641	0.6245155930519104
50	1	3	90	0.000000	0.2299	None
50	1	3	90	1.000000	0.1918	1.2128924131393433
50	1	3	90	5.000000	0.2907	0.7649449110031128
50	1	3	120	0.000000	0.1255	None
50	1	3	120	1.000000	0.2353	1.2862718105316162
50	1	3	120	5.000000	0.2119	0.8437903523445129
50	2	1	30	0.000000	0.3343	None
50	2	1	30	1.000000	0.2679	0.3886429965496063
50	2	1	30	5.000000	0.4057	0.430299311876297
50	2	1	60	0.000000	0.2352	None
50	2	1	60	1.000000	0.1759	0.534745454788208
50	2	1	60	5.000000	0.2838	0.4050599932670593

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Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
50	2	1	90	0.000000	0.0976	None
50	2	1	90	1.000000	0.1185	0.7632481455802917
50	2	1	90	5.000000	0.2221	0.417986124753952
50	2	1	120	0.000000	0.0420	None
50	2	1	120	1.000000	0.0931	0.9647961258888245
50	2	1	120	5.000000	0.0810	0.7938533425331116
50	2	2	30	0.000000	0.3795	None
50	2	2	30	1.000000	0.3880	0.5381757020950317
50	2	2	30	5.000000	0.4902	0.4897696375846863
50	2	2	60	0.000000	0.2130	None
50	2	2	60	1.000000	0.2326	0.938339114189148
50	2	2	60	5.000000	0.5029	0.5926635265350342
50	2	2	90	0.000000	0.1447	None
50	2	2	90	1.000000	0.1615	0.9951523542404175
50	2	2	90	5.000000	0.2933	0.6370590329170227
50	2	2	120	0.000000	0.0695	None
50	2	2	120	1.000000	0.1288	1.258204460144043
50	2	2	120	5.000000	0.1190	1.0280412435531616
50	2	3	30	0.000000	0.4905	None
50	2	3	30	1.000000	0.4241	0.60980224609375
50	2	3	30	5.000000	0.5713	0.5513275265693665
50	2	3	60	0.000000	0.2506	None
50	2	3	60	1.000000	0.2805	0.6700031757354736
50	2	3	60	5.000000	0.3837	0.5262901782989502
50	2	3	90	0.000000	0.1245	None
50	2	3	90	1.000000	0.1980	1.0862007141113281
50	2	3	90	5.000000	0.3454	0.6856286525726318
50	2	3	120	0.000000	0.0956	None
50	2	3	120	1.000000	0.1529	1.176561713218689
50	2	3	120	5.000000	0.3200	0.8466838598251343
50	3	1	30	0.000000	0.2354	None
50	3	1	30	1.000000	0.2550	0.39500412344932556
50	3	1	30	5.000000	0.3486	0.35500311851501465
50	3	1	60	0.000000	0.1182	None
50	3	1	60	1.000000	0.1144	0.4829402565956116
50	3	1	60	5.000000	0.2255	0.38535138964653015
50	3	1	90	0.000000	0.0715	None
50	3	1	90	1.000000	0.0741	0.6471298336982727
50	3	1	90	5.000000	0.1592	0.4603876769542694
50	3	1	120	0.000000	0.0522	None
50	3	1	120	1.000000	0.0764	0.9977796077728271
50	3	1	120	5.000000	0.0653	0.7680411338806152
50	3	2	30	0.000000	0.3792	None
50	3	2	30	1.000000	0.4033	0.4929802417755127

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Resnet	Latent	Window	Train Steps	Train-Test Split	Train Loss	Valid Loss
50	3	2	30	5.000000	0.4734	0.4759426414966583
50	3	2	60	0.000000	0.1980	None
50	3	2	60	1.000000	0.1883	0.6726192831993103
50	3	2	60	5.000000	0.3181	0.49465060234069824
50	3	2	90	0.000000	0.1053	None
50	3	2	90	1.000000	0.1312	0.9768242835998535
50	3	2	90	5.000000	0.2019	0.6059135794639587
50	3	2	120	0.000000	0.0714	None
50	3	2	120	1.000000	0.1019	1.2255635261535645
50	3	2	120	5.000000	0.1232	0.868205189704895
50	3	3	30	0.000000	0.4167	None
50	3	3	30	1.000000	0.3712	0.5328891277313232
50	3	3	30	5.000000	0.5188	0.5284302830696106
50	3	3	60	0.000000	0.2400	None
50	3	3	60	1.000000	0.2248	0.7626981139183044
50	3	3	60	5.000000	0.4620	0.5939317941665649
50	3	3	90	0.000000	0.1324	None
50	3	3	90	1.000000	0.1379	1.0908219814300537
50	3	3	90	5.000000	0.2264	0.698715329170227
50	3	3	120	0.000000	0.0778	None
50	3	3	120	1.000000	0.1004	1.2244442701339722
50	3	3	120	5.000000	0.1091	1.0615155696868896

3 AMI Scores without Noise

In this section, I present table of mean AMI scores for the two different cluster sizes we consider, after removing noise. These scores occur when noise is considered a cluster, in order to discourage clustering which resulted in all data points being labeled noise.

Parameters are (Resnet Version, Latent Space Dimension, Window Size, Training Steps, Train-Test Split, Line Width)

3.1 Minimum Cluster Size 2 and Minimum Sample Size 2

Rank	AMI	Parameters	Clusters	Noise
1	0.676700	`(18, 3, 1, 30, 0.5, 1)`	51	303
2	0.676400	`(18, 2, 1, 90, 0.1, 1)`	54	291
3	0.671900	`(18, 3, 1, 120, 0, 1)`	57	279
4	0.670800	`(18, 2, 1, 30, 0.1, 1)`	54	294
5	0.669500	`(50, 2, 1, 30, 0.1, 1)`	56	293
6	0.669100	`(18, 3, 1, 60, 0.5, 1)`	50	298
7	0.669100	`(50, 3, 1, 30, 0.1, 1)`	61	285
8	0.669000	`(18, 3, 1, 30, 0, 1)`	48	313

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Rank	AMI	Parameters	Clusters	Noise
9	0.668400	(50, 3, 1, 60, 0, 1)	61	266
10	0.668400	(50, 3, 1, 60, 0.5, 1)	55	267
11	0.667600	(18, 3, 1, 60, 0.1, 1)	56	275
12	0.667000	(50, 2, 1, 60, 0.1, 1)	52	295
13	0.667000	(18, 2, 1, 30, 0.5, 1)	55	288
14	0.666900	(50, 3, 1, 90, 0.5, 1)	56	303
15	0.665400	(50, 3, 1, 30, 0, 1)	54	298
16	0.665400	(50, 2, 1, 90, 0, 1)	51	278
17	0.665400	(50, 3, 1, 90, 0, 1)	54	284
18	0.663600	(50, 3, 1, 90, 0.1, 1)	62	289
19	0.663200	(50, 3, 1, 120, 0.1, 1)	56	271
20	0.662700	(18, 3, 1, 90, 0.1, 1)	55	266
21	0.662700	(18, 3, 1, 90, 0, 1)	53	278
22	0.662300	(50, 2, 1, 60, 0.5, 1)	53	284
23	0.660100	(18, 2, 1, 60, 0.5, 1)	58	281
24	0.660000	(50, 3, 1, 120, 0, 1)	55	265
25	0.658300	(50, 3, 1, 60, 0.1, 1)	57	279
26	0.658200	(50, 1, 1, 120, 0.1, 1)	49	300
27	0.655900	(50, 3, 1, 30, 0.5, 1)	50	281
28	0.655500	(18, 3, 1, 60, 0, 1)	57	287
29	0.654500	(18, 3, 1, 90, 0.5, 1)	59	304
30	0.653300	(18, 3, 1, 120, 0.5, 1)	54	278
31	0.652300	(50, 2, 1, 90, 0.1, 1)	59	281
32	0.650400	(18, 3, 1, 120, 0.1, 1)	54	295
33	0.649500	(18, 1, 1, 30, 0, 1)	57	286
34	0.649400	(50, 2, 1, 120, 0.1, 1)	53	283
35	0.648100	(18, 2, 1, 90, 0.5, 1)	61	269
36	0.643500	(50, 2, 1, 60, 0, 1)	46	266
37	0.642200	(50, 2, 1, 90, 0.5, 1)	57	278
38	0.642100	(50, 1, 1, 60, 0, 1)	57	309
39	0.640200	(18, 1, 1, 60, 0, 1)	56	307
40	0.637700	(18, 1, 1, 90, 0, 1)	53	298
41	0.637200	(50, 2, 1, 120, 0, 1)	56	305
42	0.633800	(18, 1, 1, 120, 0.1, 1)	55	275
43	0.633300	(50, 3, 1, 120, 0.5, 1)	52	277
44	0.629200	(50, 1, 1, 120, 0.5, 1)	52	316
45	0.620700	(18, 1, 1, 30, 0.5, 1)	57	295
46	0.619900	(50, 1, 1, 90, 0, 1)	60	251
47	0.618300	(18, 1, 1, 120, 0.5, 1)	55	308
48	0.617600	(50, 1, 1, 30, 0, 1)	38	278
49	0.614200	(18, 1, 1, 60, 0.5, 1)	50	289
50	0.589400	(50, 2, 1, 120, 0.5, 1)	52	286
51	0.584000	(50, 2, 1, 30, 0, 1)	47	227
52	0.572300	(50, 1, 1, 60, 0.1, 1)	39	228

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Rank	AMI	Parameters	Clusters	Noise
53	0.511200	(18, 1, 1, 30, 0.1, 1)	45	221
54	0.509300	(18, 1, 1, 90, 0.5, 1)	34	215
55	0.481300	(50, 1, 1, 90, 0.1, 1)	30	197
56	0.356400	(50, 2, 1, 30, 0.5, 1)	37	259
57	0.174500	(18, 2, 1, 30, 0, 1)	2	15
58	0.173900	(18, 1, 1, 120, 0, 1)	2	46
59	0.169900	(18, 1, 1, 90, 0.1, 1)	2	25
60	0.168300	(18, 2, 1, 90, 0, 1)	2	19
61	0.164800	(50, 1, 1, 30, 0.1, 1)	2	19
62	0.164800	(18, 2, 1, 120, 0, 1)	2	15
63	0.162300	(18, 2, 1, 120, 0.1, 1)	2	19
64	0.159800	(18, 3, 1, 30, 0.1, 1)	3	11
65	0.156000	(18, 2, 1, 60, 0, 1)	3	8
66	0.155600	(18, 1, 1, 60, 0.1, 1)	2	27
67	0.155600	(50, 1, 1, 90, 0.5, 1)	2	13
68	0.153300	(18, 2, 1, 60, 0.1, 1)	2	12
69	0.140000	(50, 1, 1, 120, 0, 1)	3	40
70	0.014700	(18, 2, 1, 120, 0.5, 1)	2	26
71	0.003400	(50, 1, 1, 60, 0.5, 1)	2	19
72	-0.001800	(50, 1, 1, 30, 0.5, 1)	2	0

3.2 Minimum Cluster Size 3 and Minimum Sample Size 2

Rank	AMI	Parameters	Clusters	Noise
1	0.669000	(18, 2, 1, 30, 0.1, 1)	41	308
2	0.668300	(18, 3, 1, 30, 0.5, 1)	40	312
3	0.666200	(18, 3, 1, 30, 0, 1)	40	321
4	0.665400	(18, 3, 1, 60, 0.1, 1)	43	296
5	0.662800	(18, 3, 1, 60, 0.5, 1)	41	303
6	0.661700	(50, 3, 1, 90, 0.5, 1)	42	320
7	0.660800	(50, 3, 1, 60, 0.5, 1)	41	280
8	0.659300	(50, 3, 1, 90, 0.1, 1)	45	299
9	0.659200	(18, 2, 1, 90, 0.1, 1)	44	304
10	0.658100	(50, 3, 1, 30, 0.1, 1)	44	297
11	0.657400	(18, 2, 1, 30, 0.5, 1)	39	297
12	0.657200	(50, 3, 1, 60, 0, 1)	49	282
13	0.654600	(50, 2, 1, 60, 0.5, 1)	41	303
14	0.654100	(18, 3, 1, 120, 0, 1)	48	290
15	0.653800	(50, 2, 1, 90, 0, 1)	44	290
16	0.652600	(50, 3, 1, 30, 0, 1)	44	312
17	0.652500	(18, 3, 1, 90, 0, 1)	44	293
18	0.651800	(50, 3, 1, 90, 0, 1)	45	290

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Rank	AMI	Parameters	Clusters	Noise
19	0.649400	(50, 3, 1, 30, 0.5, 1)	41	299
20	0.649400	(18, 3, 1, 90, 0.1, 1)	43	273
21	0.647200	(50, 3, 1, 120, 0.1, 1)	43	286
22	0.645800	(18, 2, 1, 60, 0.5, 1)	51	295
23	0.645700	(50, 1, 1, 120, 0.1, 1)	37	307
24	0.645700	(50, 2, 1, 90, 0.1, 1)	47	292
25	0.643800	(50, 2, 1, 60, 0, 1)	39	277
26	0.642700	(18, 1, 1, 30, 0, 1)	46	311
27	0.641500	(50, 3, 1, 120, 0, 1)	48	265
28	0.641500	(18, 2, 1, 90, 0.5, 1)	45	291
29	0.641400	(18, 3, 1, 90, 0.5, 1)	44	317
30	0.640400	(18, 3, 1, 60, 0, 1)	44	298
31	0.635500	(50, 2, 1, 90, 0.5, 1)	47	281
32	0.634100	(50, 2, 1, 60, 0.1, 1)	40	270
33	0.632100	(18, 3, 1, 120, 0.1, 1)	50	299
34	0.631500	(50, 2, 1, 120, 0.1, 1)	44	294
35	0.630300	(18, 3, 1, 120, 0.5, 1)	42	287
36	0.629300	(50, 3, 1, 120, 0.5, 1)	42	302
37	0.626400	(50, 2, 1, 120, 0, 1)	43	321
38	0.620700	(50, 1, 1, 90, 0, 1)	45	257
39	0.619800	(50, 1, 1, 30, 0, 1)	33	266
40	0.619100	(50, 1, 1, 60, 0, 1)	42	312
41	0.614700	(18, 1, 1, 60, 0.5, 1)	34	311
42	0.613500	(50, 1, 1, 120, 0.5, 1)	41	329
43	0.602800	(50, 2, 1, 30, 0, 1)	37	230
44	0.602200	(18, 1, 1, 120, 0.5, 1)	38	306
45	0.593100	(50, 2, 1, 120, 0.5, 1)	38	309
46	0.589200	(50, 1, 1, 60, 0.1, 1)	32	240
47	0.564700	(18, 1, 1, 90, 0, 1)	24	233
48	0.556300	(18, 1, 1, 90, 0.5, 1)	27	220
49	0.553700	(18, 1, 1, 30, 0.1, 1)	33	241
50	0.551000	(18, 1, 1, 60, 0, 1)	26	197
51	0.531500	(50, 1, 1, 90, 0.1, 1)	26	202
52	0.526800	(50, 2, 1, 30, 0.1, 1)	29	178
53	0.455800	(18, 1, 1, 120, 0.1, 1)	23	160
54	0.396000	(18, 1, 1, 60, 0.1, 1)	18	131
55	0.342900	(50, 2, 1, 30, 0.5, 1)	28	268
56	0.318500	(18, 1, 1, 30, 0.5, 1)	16	115
57	0.178100	(50, 1, 1, 120, 0, 1)	2	38
58	0.174400	(18, 1, 1, 120, 0, 1)	2	46
59	0.174100	(18, 1, 1, 90, 0.1, 1)	2	25
60	0.174100	(18, 2, 1, 30, 0, 1)	2	15
61	0.170900	(18, 3, 1, 30, 0.1, 1)	2	13
62	0.170900	(18, 2, 1, 90, 0, 1)	2	19

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Rank	AMI	Parameters	Clusters	Noise
63	0.167400	(50, 1, 1, 30, 0.1, 1)	2	19
64	0.167400	(18, 2, 1, 60, 0, 1)	2	10
65	0.167400	(18, 2, 1, 120, 0, 1)	2	15
66	0.162100	(18, 2, 1, 120, 0.1, 1)	2	19
67	0.158600	(50, 1, 1, 90, 0.5, 1)	2	13
68	0.156400	(18, 2, 1, 60, 0.1, 1)	2	12
69	0.132200	(50, 3, 1, 60, 0.1, 1)	3	36
70	0.018500	(18, 2, 1, 120, 0.5, 1)	2	26
71	0.004600	(50, 1, 1, 60, 0.5, 1)	2	19
72	-0.001300	(50, 1, 1, 30, 0.5, 1)	2	0

4 AMI Scores

In this section, I present table of mean AMI scores for the two different cluster sizes we consider. These scores occur when noise is considered a cluster, in order to discourage clustering which resulted in all data points being labeled noise.

Parameters are (Resnet Version, Latent Space Dimension, Window Size, Training Steps, Train-Test Split, Line Width)

4.1 Minimum Cluster Size 2 and Minimum Sample Size 2

Rank	AMI	Parameters	Clusters	Noise
1	0.446200	(18, 3, 1, 60, 0.1, 1)	56	275
2	0.439100	(18, 3, 1, 90, 0.1, 1)	55	266
3	0.438200	(50, 3, 1, 60, 0, 1)	61	266
4	0.434100	(18, 2, 1, 90, 0.1, 1)	54	291
5	0.433100	(50, 2, 1, 30, 0.1, 1)	56	293
6	0.432700	(50, 3, 1, 60, 0.1, 1)	57	279
7	0.432300	(50, 3, 1, 30, 0.1, 1)	61	285
8	0.430700	(50, 2, 1, 60, 0.1, 1)	52	295
9	0.429500	(18, 2, 1, 60, 0.5, 1)	58	281
10	0.429400	(50, 3, 1, 90, 0.1, 1)	62	289
11	0.429100	(18, 2, 1, 30, 0.1, 1)	54	294
12	0.428600	(50, 3, 1, 120, 0.1, 1)	56	271
13	0.428400	(18, 3, 1, 60, 0.5, 1)	50	298
14	0.427000	(50, 3, 1, 60, 0.5, 1)	55	267
15	0.425700	(50, 3, 1, 120, 0, 1)	55	265
16	0.423100	(50, 3, 1, 30, 0.5, 1)	50	281
17	0.420000	(18, 3, 1, 120, 0, 1)	57	279
18	0.419000	(50, 2, 1, 90, 0, 1)	51	278
19	0.417900	(18, 3, 1, 30, 0, 1)	48	313
20	0.417900	(18, 3, 1, 90, 0, 1)	53	278

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Rank	AMI	Parameters	Clusters	Noise
21	0.417200	(18, 3, 1, 120, 0.5, 1)	54	278
22	0.416900	(50, 3, 1, 30, 0, 1)	54	298
23	0.415200	(50, 3, 1, 90, 0, 1)	54	284
24	0.414400	(18, 2, 1, 90, 0.5, 1)	61	269
25	0.412600	(18, 3, 1, 30, 0.5, 1)	51	303
26	0.410800	(18, 3, 1, 120, 0.1, 1)	54	295
27	0.406000	(50, 3, 1, 120, 0.5, 1)	52	277
28	0.406000	(18, 1, 1, 60, 0, 1)	56	307
29	0.404700	(50, 3, 1, 90, 0.5, 1)	56	303
30	0.401900	(50, 2, 1, 90, 0.1, 1)	59	281
31	0.401500	(18, 1, 1, 30, 0, 1)	57	286
32	0.401100	(18, 2, 1, 30, 0.5, 1)	55	288
33	0.400600	(50, 2, 1, 60, 0, 1)	46	266
34	0.397300	(50, 2, 1, 90, 0.5, 1)	57	278
35	0.396900	(18, 1, 1, 90, 0, 1)	53	298
36	0.394800	(18, 3, 1, 90, 0.5, 1)	59	304
37	0.393900	(18, 3, 1, 60, 0, 1)	57	287
38	0.393400	(50, 1, 1, 30, 0, 1)	38	278
39	0.391500	(18, 1, 1, 120, 0.1, 1)	55	275
40	0.391000	(50, 2, 1, 60, 0.5, 1)	53	284
41	0.389700	(50, 2, 1, 120, 0.1, 1)	53	283
42	0.388200	(50, 1, 1, 120, 0.1, 1)	49	300
43	0.372500	(50, 1, 1, 60, 0, 1)	57	309
44	0.372200	(50, 2, 1, 120, 0, 1)	56	305
45	0.367100	(18, 1, 1, 60, 0.5, 1)	50	289
46	0.364500	(18, 1, 1, 120, 0.5, 1)	55	308
47	0.364100	(50, 1, 1, 60, 0.1, 1)	39	228
48	0.359300	(50, 1, 1, 90, 0, 1)	60	251
49	0.359200	(18, 1, 1, 90, 0.5, 1)	34	215
50	0.359000	(50, 2, 1, 30, 0, 1)	47	227
51	0.353500	(18, 1, 1, 30, 0.1, 1)	45	221
52	0.352700	(50, 1, 1, 90, 0.1, 1)	30	197
53	0.349300	(18, 1, 1, 30, 0.5, 1)	57	295
54	0.331500	(50, 2, 1, 120, 0.5, 1)	52	286
55	0.323100	(50, 1, 1, 120, 0.5, 1)	52	316
56	0.205900	(50, 2, 1, 30, 0.5, 1)	37	259
57	0.105100	(18, 2, 1, 120, 0.1, 1)	2	19
58	0.104600	(18, 2, 1, 30, 0, 1)	2	15
59	0.102600	(18, 2, 1, 60, 0.1, 1)	2	12
60	0.097900	(18, 2, 1, 60, 0, 1)	3	8
61	0.097600	(18, 2, 1, 120, 0, 1)	2	15
62	0.095600	(18, 1, 1, 90, 0.1, 1)	2	25
63	0.094500	(18, 2, 1, 90, 0, 1)	2	19
64	0.091500	(50, 1, 1, 30, 0.1, 1)	2	19

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Rank	AMI	Parameters	Clusters	Noise
65	0.090700	(18, 1, 1, 60, 0.1, 1)	2	27
66	0.087300	(18, 3, 1, 30, 0.1, 1)	3	11
67	0.085400	(50, 1, 1, 90, 0.5, 1)	2	13
68	0.084200	(18, 1, 1, 120, 0, 1)	2	46
69	0.055800	(50, 1, 1, 120, 0, 1)	3	40
70	0.052700	(18, 2, 1, 120, 0.5, 1)	2	26
71	0.017200	(50, 1, 1, 60, 0.5, 1)	2	19
72	-0.000800	(50, 1, 1, 30, 0.5, 1)	2	0

4.2 Minimum Cluster Size 3 and Minimum Sample Size 2

Rank	AMI	Parameters	Clusters	Noise
1	0.456700	(18, 3, 1, 60, 0.1, 1)	43	296
2	0.447700	(50, 3, 1, 30, 0.1, 1)	44	297
3	0.444500	(18, 2, 1, 90, 0.1, 1)	44	304
4	0.443100	(50, 3, 1, 90, 0.1, 1)	45	299
5	0.441600	(18, 3, 1, 90, 0.1, 1)	43	273
6	0.439600	(50, 3, 1, 60, 0.5, 1)	41	280
7	0.437900	(18, 2, 1, 30, 0.1, 1)	41	308
8	0.436200	(50, 3, 1, 60, 0, 1)	49	282
9	0.435900	(18, 3, 1, 60, 0.5, 1)	41	303
10	0.435400	(50, 3, 1, 30, 0.5, 1)	41	299
11	0.433200	(50, 3, 1, 120, 0.1, 1)	43	286
12	0.431700	(18, 2, 1, 30, 0.5, 1)	39	297
13	0.430600	(50, 2, 1, 60, 0.1, 1)	40	270
14	0.429500	(18, 2, 1, 90, 0.5, 1)	45	291
15	0.429300	(18, 3, 1, 90, 0, 1)	44	293
16	0.428600	(50, 3, 1, 30, 0, 1)	44	312
17	0.428400	(18, 3, 1, 30, 0.5, 1)	40	312
18	0.426200	(18, 2, 1, 60, 0.5, 1)	51	295
19	0.426000	(50, 3, 1, 120, 0, 1)	48	265
20	0.424400	(18, 3, 1, 30, 0, 1)	40	321
21	0.423200	(18, 3, 1, 120, 0.5, 1)	42	287
22	0.421900	(18, 3, 1, 120, 0, 1)	48	290
23	0.421500	(50, 2, 1, 90, 0, 1)	44	290
24	0.415200	(50, 3, 1, 120, 0.5, 1)	42	302
25	0.413500	(18, 3, 1, 120, 0.1, 1)	50	299
26	0.413300	(50, 3, 1, 90, 0, 1)	45	290
27	0.411500	(50, 2, 1, 60, 0, 1)	39	277
28	0.409700	(18, 3, 1, 90, 0.5, 1)	44	317
29	0.409300	(18, 1, 1, 60, 0, 1)	26	197
30	0.408500	(18, 1, 1, 30, 0, 1)	46	311

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Rank	AMI	Parameters	Clusters	Noise
31	0.408100	(50, 2, 1, 90, 0.5, 1)	47	281
32	0.407400	(50, 2, 1, 90, 0.1, 1)	47	292
33	0.406300	(50, 2, 1, 60, 0.5, 1)	41	303
34	0.405600	(50, 3, 1, 90, 0.5, 1)	42	320
35	0.404400	(50, 1, 1, 30, 0, 1)	33	266
36	0.400500	(18, 3, 1, 60, 0, 1)	44	298
37	0.399800	(50, 2, 1, 120, 0.1, 1)	44	294
38	0.397500	(18, 1, 1, 90, 0, 1)	24	233
39	0.388500	(18, 1, 1, 90, 0.5, 1)	27	220
40	0.386100	(50, 1, 1, 120, 0.1, 1)	37	307
41	0.383200	(18, 1, 1, 30, 0.1, 1)	33	241
42	0.382900	(50, 2, 1, 30, 0.1, 1)	29	178
43	0.382400	(18, 1, 1, 60, 0.5, 1)	34	311
44	0.380700	(50, 2, 1, 120, 0, 1)	43	321
45	0.378600	(50, 1, 1, 60, 0.1, 1)	32	240
46	0.378400	(50, 2, 1, 30, 0, 1)	37	230
47	0.376600	(18, 1, 1, 120, 0.5, 1)	38	306
48	0.374300	(50, 1, 1, 90, 0.1, 1)	26	202
49	0.371700	(50, 1, 1, 60, 0, 1)	42	312
50	0.371400	(50, 1, 1, 90, 0, 1)	45	257
51	0.346900	(18, 1, 1, 120, 0.1, 1)	23	160
52	0.325000	(50, 1, 1, 120, 0.5, 1)	41	329
53	0.322900	(18, 1, 1, 60, 0.1, 1)	18	131
54	0.316100	(50, 2, 1, 120, 0.5, 1)	38	309
55	0.268900	(18, 1, 1, 30, 0.5, 1)	16	115
56	0.197800	(50, 2, 1, 30, 0.5, 1)	28	268
57	0.122000	(50, 3, 1, 60, 0.1, 1)	3	36
58	0.110300	(18, 2, 1, 120, 0.1, 1)	2	19
59	0.109000	(18, 2, 1, 30, 0, 1)	2	15
60	0.108100	(18, 2, 1, 60, 0.1, 1)	2	12
61	0.105900	(18, 2, 1, 60, 0, 1)	2	10
62	0.102900	(18, 2, 1, 120, 0, 1)	2	15
63	0.101400	(18, 2, 1, 90, 0, 1)	2	19
64	0.097300	(18, 1, 1, 90, 0.1, 1)	2	25
65	0.096500	(50, 1, 1, 30, 0.1, 1)	2	19
66	0.096000	(18, 3, 1, 30, 0.1, 1)	2	13
67	0.090100	(18, 1, 1, 120, 0, 1)	2	46
68	0.087700	(50, 1, 1, 90, 0.5, 1)	2	13
69	0.061000	(50, 1, 1, 120, 0, 1)	2	38
70	0.058000	(18, 2, 1, 120, 0.5, 1)	2	26
71	0.017500	(50, 1, 1, 60, 0.5, 1)	2	19
72	-0.000800	(50, 1, 1, 30, 0.5, 1)	2	0