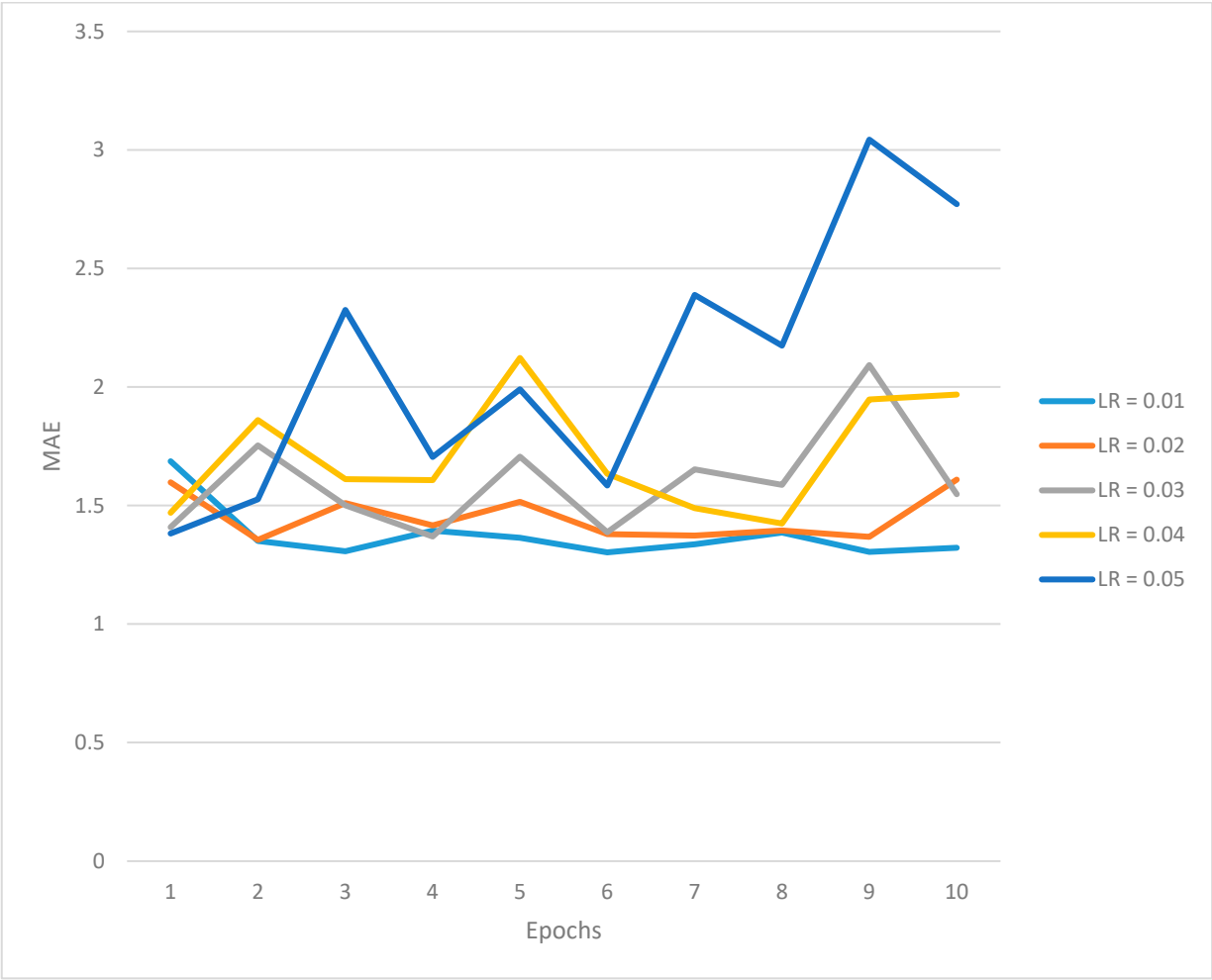


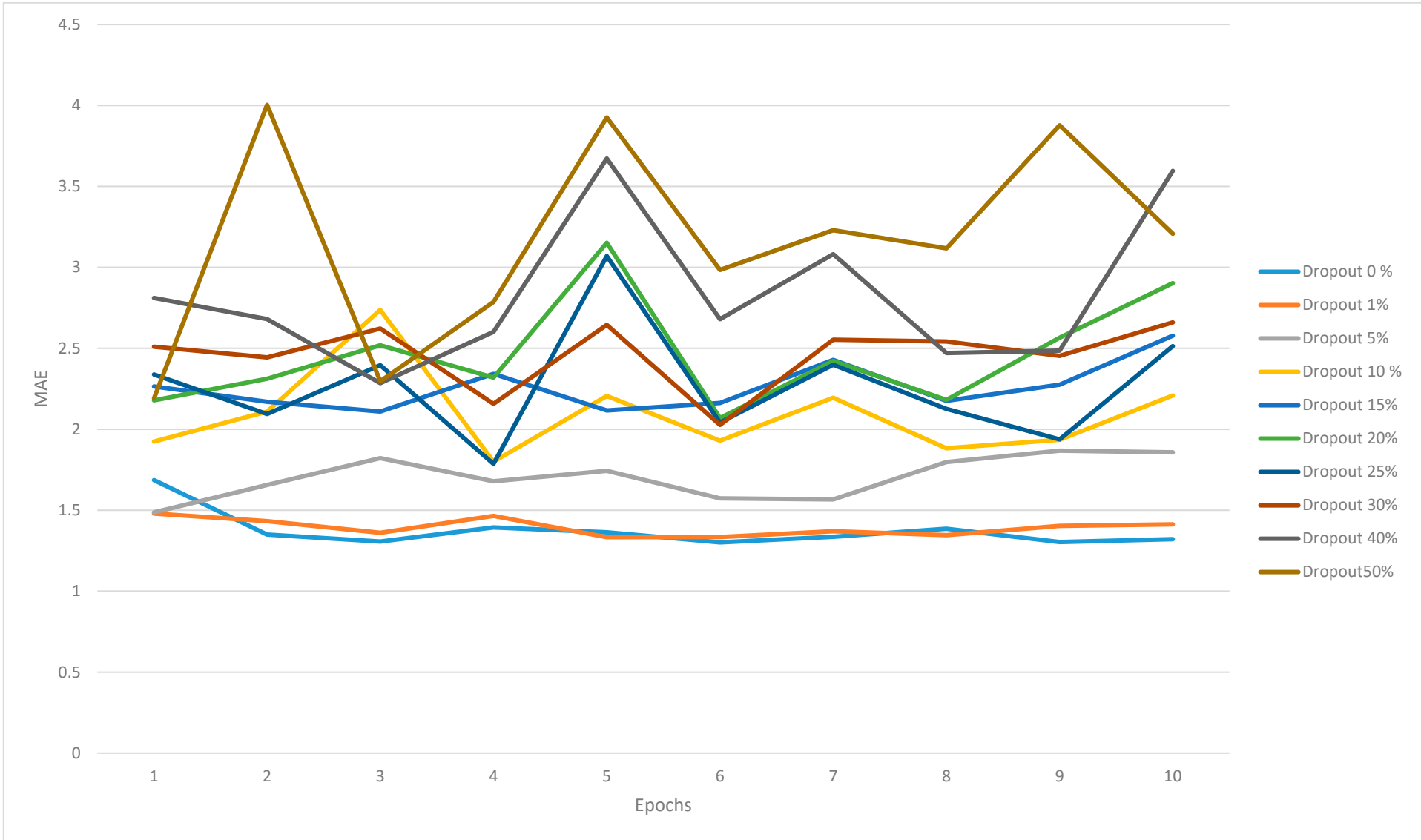
Spreadsheet S1. Learning Rate.

Epochs	LR = 0.01		LR = 0.02		LR = 0.03		LR = 0.04		LR = 0.05	
	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE
1	1.686771	9.049525	1.597718	8.791952	1.408076	7.880785	1.469315	7.539211	1.381861	7.597776
2	1.349986	7.263715	1.355432	7.217582	1.753536	8.02325	1.859995	8.167907	1.525982	8.201336
3	1.306907	7.314387	1.510228	7.436864	1.500459	7.444733	1.611041	7.679255	2.324493	11.72478
4	1.39355	7.844587	1.415631	7.753263	1.369195	7.653821	1.606937	7.858154	1.70424	8.149684
5	1.363716	7.227499	1.515033	7.535853	1.705931	8.380697	2.12276	10.21109	1.989933	10.11957
6	1.302081	7.260479	1.379128	7.223499	1.387074	7.698637	1.633281	9.247341	1.584154	8.242172
7	1.335901	7.305868	1.373256	7.356216	1.652356	8.357008	1.488423	7.792563	2.388028	12.66957
8	1.385934	7.746908	1.394226	7.423976	1.586577	9.137639	1.42419	7.680138	2.174021	11.54946
9	1.303864	7.274808	1.36764	7.25983	2.092322	9.69335	1.94695	8.910186	3.043783	16.4667
10	1.321242	7.262512	1.609117	8.40649	1.547542	8.633998	1.967929	10.41697	2.771473	14.95573



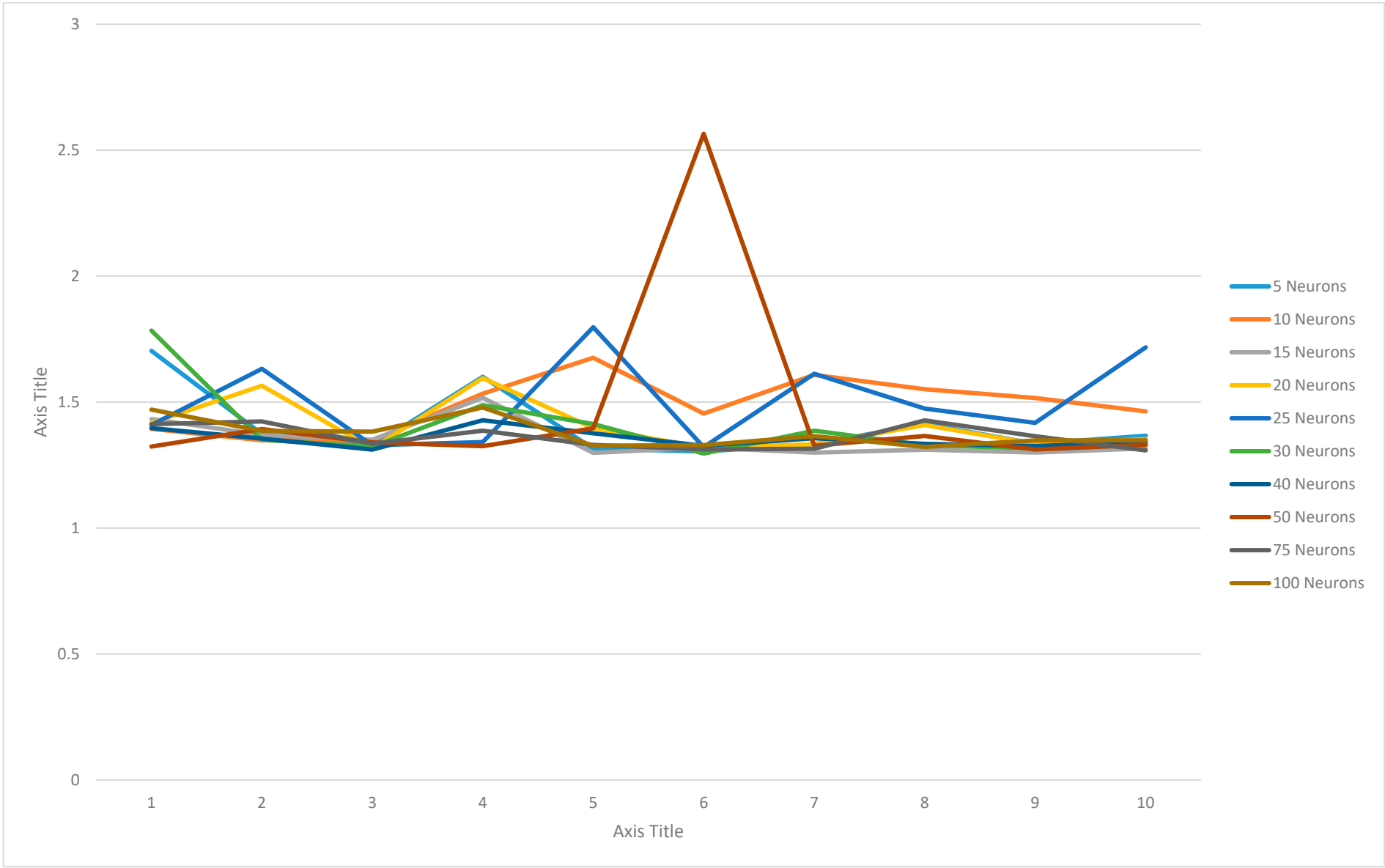
Spreadsheet S2. Dropout

	Dropout 0 %		Dropout 1%		Dropout 5%		Dropout 10 %		Dropout 15%		Dropout 20%		Dropout 25%		Dropout 30%		Dropout 40%		Dropout50%	
Epochs	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE
1	1.686771	9.049525	1.480229	8.108419	1.487194	7.970259	1.92423	8.945499	2.264638	11.07942	2.178904772	10.14514446	2.338359	11.86674	2.510149	13.19965	2.810778	15.94929	2.190331	11.69292
2	1.349986	7.263715	1.432768	7.210764	1.655982	7.780385	2.109151	9.52293	2.169846	9.991771	2.311986923	11.18597603	2.094168	9.862114	2.444035	13.48803	2.680563	14.80302	4.003515	32.90007
3	1.306907	7.314387	1.361022	7.423816	1.822016	9.274536	2.737019	15.28581	2.109854	10.28033	2.518511057	12.52099037	2.395331	12.49155	2.621679	13.90858	2.285295	11.80816	2.296496	12.30308
4	1.39355	7.844587	1.464623	8.087147	1.678928	8.872779	1.800581	8.42853	2.342384	12.00522	2.319530249	11.58354187	1.786619	8.587654	2.157405	11.41307	2.601556	14.15332	2.786093	15.96103
5	1.363716	7.227499	1.334212	7.375373	1.743605	9.172857	2.205978	11.81976	2.116594	10.07291	3.151833773	18.38983345	3.069818	17.69684	2.644967	14.82859	3.672518	26.5812	3.92554	26.50223
6	1.302081	7.260479	1.334628	7.479818	1.573183	7.847444	1.929198	8.912922	2.162135	10.46781	2.069459677	9.448813438	2.04195	10.11685	2.027301	10.18613	2.679564	15.02205	2.983681	18.53403
7	1.335901	7.305868	1.37025	7.508747	1.566364	7.579075	2.194767	11.65123	2.428391	12.5598	2.421570301	11.93983555	2.398484	13.64172	2.553256	14.42732	3.081262	18.76183	3.229456	19.73684
8	1.385934	7.746908	1.346082	7.164536	1.797929	9.542643	1.882839	9.385508	2.176017	10.76966	2.181907415	10.3900156	2.125593	10.79191	2.542037	14.70435	2.471328	12.71943	3.117019	18.46549
9	1.303864	7.274808	1.403416	7.401682	1.867932	9.098566	1.935152	9.350772	2.275062	11.43456	2.565845013	13.66019535	1.937257	8.933779	2.453603	12.99916	2.485584	13.3192	3.876992	26.09013
10	1.321242	7.262512	1.413028	7.890638	1.857703	10.61233	2.208585	10.57364	2.578707	14.4646	2.902745724	16.14343643	2.51352	15.37241	2.660163	15.00468	3.596189	24.29347	3.207304	18.62053



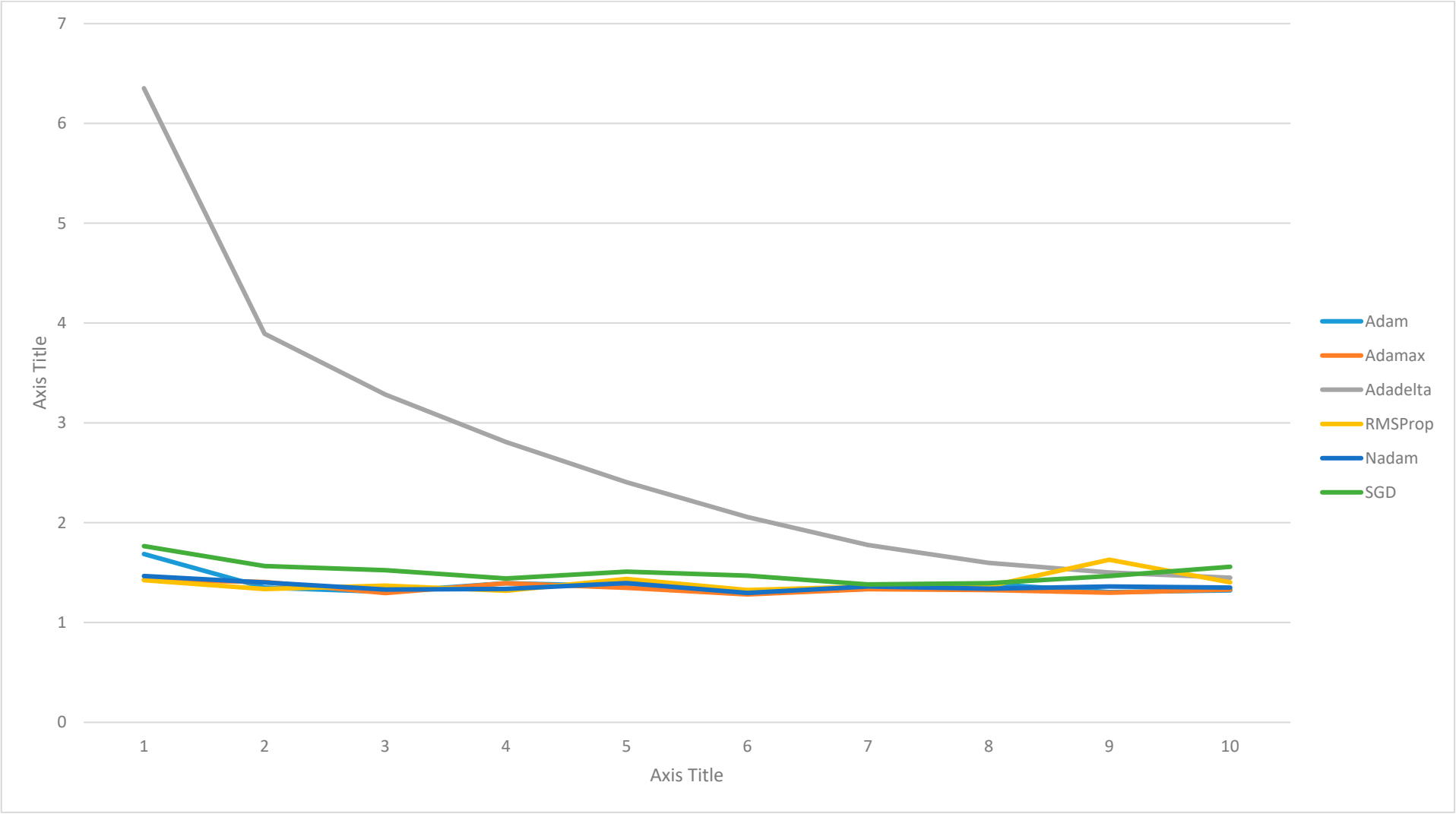
Spreadsheet S3. Layer 2 - No. of LSTM units.

Epochs	5 Neurons		10 Neurons		15 Neurons		20 Neurons		25 Neurons		30 Neurons		40 Neurons		50 Neurons		75 Neurons		100 Neurons	
	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE
1	1.703483	9.734778	1.393510818	7.792140961	1.432488	7.963754	1.41702	7.691566	1.409087	7.296659	1.783661	9.674163	1.396471	7.374694	1.323207	7.260823	1.412157	7.541549	1.469984	7.563497
2	1.373143	7.08982	1.347898126	7.376349449	1.370148	7.30751	1.564963	7.532172	1.631721	7.837942	1.350191	7.222903	1.354994	7.303328	1.392673	7.214513	1.423127	7.2918	1.385193	7.372196
3	1.325062	7.065048	1.347669005	7.242846012	1.350347	7.220499	1.315697	7.272418	1.328304	7.228276	1.32274	7.32061	1.311353	7.399015	1.339468	7.067644	1.3347	7.159493	1.382673	7.661005
4	1.600131	8.973439	1.533232808	8.595369339	1.517105	8.54963	1.595318	8.96007	1.340922	7.374677	1.487561	8.055262	1.427799	8.19763	1.324685	7.467061	1.386287	7.915722	1.478356	8.230546
5	1.314885	7.32285	1.67605865	8.283966064	1.298346	7.237145	1.396329	7.408485	1.797194	8.324821	1.412585	8.568752	1.375912	7.390156	1.396013	7.780433	1.32996	7.275451	1.326851	7.453672
6	1.304279	7.271808	1.45420742	7.911408901	1.319007	6.778543	1.319122	7.390681	1.321087	7.149768	1.295627	6.977911	1.326167	7.467103	2.56534	36.97239	1.31216	7.185224	1.32876	7.234543
7	1.332952	7.45586	1.607902408	7.699299335	1.299248	6.830578	1.332074	7.416147	1.612524	8.05268	1.386023	7.620481	1.356417	7.482643	1.32688	7.385297	1.314775	7.332701	1.364682	7.273904
8	1.413174	7.938754	1.551005125	8.465976715	1.310833	7.227767	1.408415	7.970276	1.474353	8.354515	1.329012	7.283889	1.334337	7.149654	1.365189	7.670633	1.427449	7.840269	1.322352	7.18197
9	1.334507	7.609381	1.515984058	7.67696476	1.299754	7.442302	1.33426	7.501112	1.417328	8.068422	1.315859	7.297921	1.325246	7.424098	1.312215	7.248798	1.364135	6.914255	1.347663	7.128901
10	1.366445	7.773161	1.463036656	12.10549736	1.315903	6.86656	1.352706	7.309	1.717099	9.427302	1.332975	7.977637	1.341718	7.215495	1.330506	7.307724	1.308207	7.3599	1.34803	7.378022



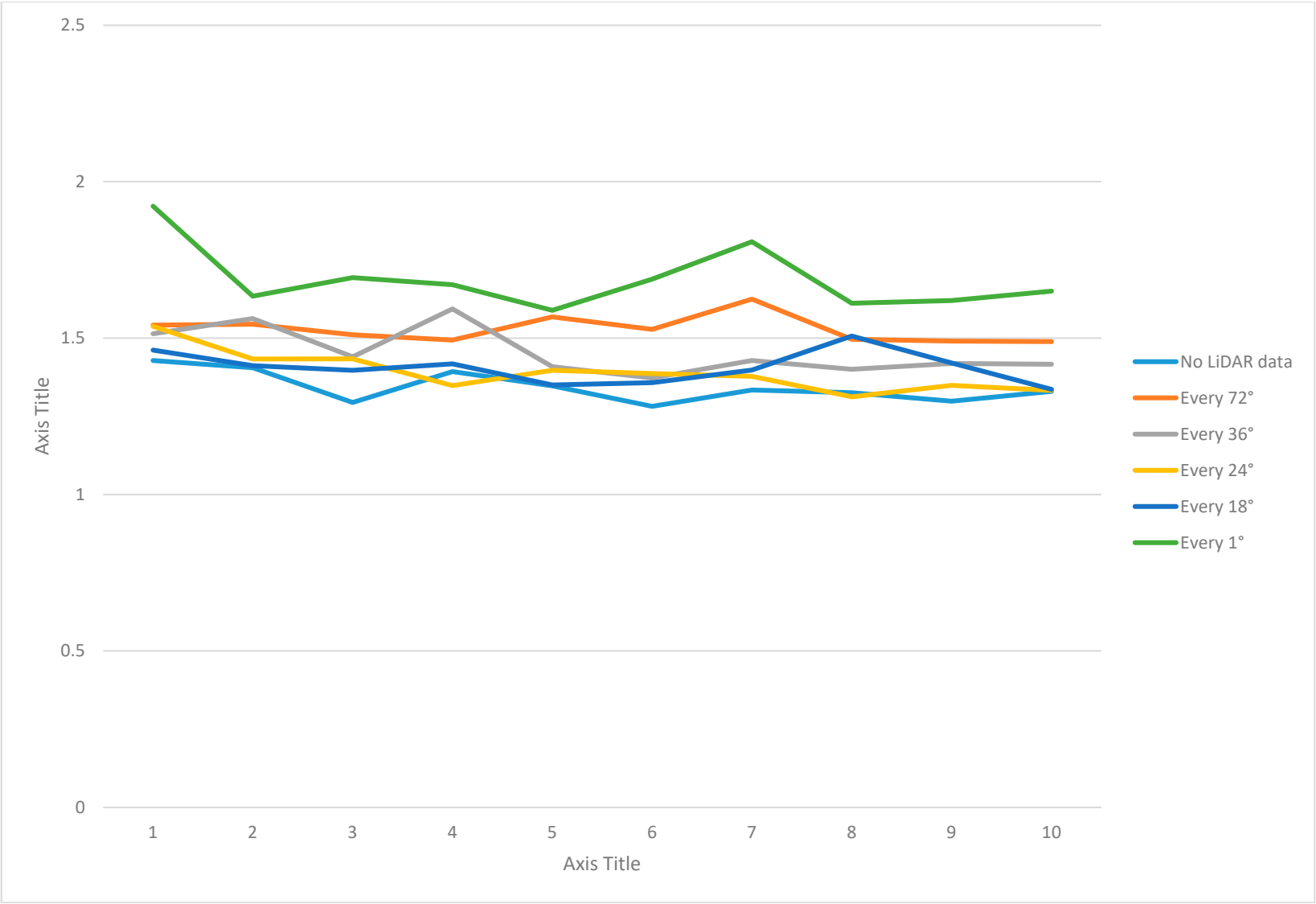
Spreadsheet S4. Optimizer.

Epochs	Adam		Adamax		Adadelta		RMSProp		Nadam		SGD	
	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE
1	1.686771	9.049525	1.428415	7.989122	6.351904	78.33114	1.423552	7.852836	1.46619	8.187849	1.766127	9.378208
2	1.349986	7.263715	1.405243	7.199185	3.89247	35.42682	1.334317	7.373376	1.401163	7.352587	1.565363	7.718357
3	1.306907	7.314387	1.294369	7.103366	3.283759	26.10395	1.369283	7.052558	1.329677	7.140164	1.523696	7.941309
4	1.39355	7.844587	1.392769	7.84486	2.808738	19.92786	1.317758	7.276518	1.335846	7.579275	1.440489	7.540804
5	1.363716	7.227499	1.34718	7.639829	2.404599	15.04609	1.436272	7.365022	1.394557	7.373302	1.509443	7.459907
6	1.302081	7.260479	1.282123	7.153187	2.056507	11.59611	1.325451	7.33127	1.295792	7.309168	1.468333	7.599711
7	1.335901	7.305868	1.334169	6.950978	1.776323	9.57458	1.35896	7.078511	1.360619	7.5649	1.382241	7.033111
8	1.385934	7.746908	1.32553	7.27003	1.596825	8.584287	1.362429	7.334821	1.338881	7.606427	1.393568	7.311974
9	1.303864	7.274808	1.298376	7.063101	1.501086	8.140914	1.629008	7.740547	1.360352	7.116661	1.464886	7.390286
10	1.321242	7.262512	1.329569	7.038637	1.448685	7.933127	1.401889	7.923148	1.349861	7.449963	1.557611	8.469942



Spreadsheet S5. Lidar scan interval.

Epochs	No LiDAR data		Every 72°		Every 36°		Every 24°		Every 18°		Every 1°	
	SI = 0		SI = 5		SI = 10		SI = 15		SI = 20		SI = 360	
	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE
1	1.428415	7.989122	1.54137	14.09972	1.513803	9.856539	1.537856	10.13486	1.461666	9.11749	1.921599	12.12894
2	1.405243	7.199185	1.544425	14.01416	1.56258	10.8084	1.433151	9.883222	1.412032	8.701735	1.634161	11.49021
3	1.294369	7.103366	1.510581	14.44448	1.440246	9.715917	1.433497	9.698186	1.397116	8.349157	1.6931	11.22733
4	1.392769	7.84486	1.493591	13.96265	1.593415	10.98417	1.348185	9.44203	1.417689	8.085324	1.67066	11.18706
5	1.34718	7.639829	1.567761	13.65187	1.408633	9.453311	1.397048	9.263516	1.350086	8.362681	1.588874	10.816
6	1.282123	7.153187	1.527727	14.36185	1.372339	9.53743	1.386795	9.134673	1.357405	8.341281	1.688432	11.184
7	1.334169	6.950978	1.624745	13.58902	1.428201	10.07707	1.377527	9.793842	1.398037	8.233082	1.80792	11.05619
8	1.32553	7.27003	1.496335	14.0712	1.400161	9.497207	1.312283	9.232319	1.506503	8.238437	1.611528	11.38099
9	1.298376	7.063101	1.490323	13.8522	1.418742	9.337	1.348888	9.229536	1.420594	8.854557	1.619877	11.06245
10	1.329569	7.038637	1.489086	14.17969	1.416156	9.684049	1.332653	9.040174	1.336336	8.315422	1.650217	10.84208



Spreadsheet S6. Final model results.

Epochs	MAE	MSE
1	1.428415	7.989122
2	1.405243	7.199185
3	1.294369	7.103366
4	1.392769	7.84486
5	1.34718	7.639829
6	1.282123	7.153187
7	1.334169	6.950978
8	1.32553	7.27003
9	1.298376	7.063101
10	1.329569	7.038637
11	1.290353	7.18541
12	1.284716	6.998314
13	1.286337	6.955005
14	1.293561	7.425424
15	1.31213	7.225727
16	1.308778	7.425049
17	1.280285	7.054379
18	1.283184	7.042294
19	1.283146	7.140605
20	1.271323	6.966178
21	1.270041	7.210002
22	1.314032	7.277472
23	1.279537	7.210021
24	1.259157	7.132759
25	1.299354	7.330933
26	1.28239	7.261334
27	1.275982	6.992564
28	1.27365	7.173171
29	1.305417	6.991368
30	1.31864	7.217506
31	1.322156	7.279828
32	1.369753	7.019694
33	1.378253	7.802652
34	1.359389	7.469339
35	1.295083	7.173016
36	1.275263	7.005784
37	1.268523	7.026417
38	1.424984	7.04964
39	1.28359	6.973641
40	1.274966	7.113659
41	1.316547	7.400913

42	1.383754	7.052124
43	1.35928	6.996058
44	1.287672	6.898945
45	1.256065	7.129129
46	1.268836	7.249044
47	1.266316	7.129576
48	1.275317	7.132141
49	1.310189	7.415701
50	1.315226	6.889865
51	1.273873	7.11763
52	1.274753	7.002339
53	1.296279	7.365803
54	1.278255	7.112611
55	1.286419	7.198528
56	1.343172	7.609222
57	1.347636	7.758152
58	1.419454	7.061895
59	1.261363	7.048117
60	1.271816	7.283846
61	1.264752	7.023352
62	1.345568	7.679196
63	1.264431	7.170231
64	1.3009	6.990003
65	1.267895	7.161178
66	1.26639	7.155465
67	1.369801	7.762045
68	1.320844	6.968169
69	1.337192	7.602895
70	1.357721	6.930213
71	1.28545	7.050087
72	1.263497	7.025104
73	1.475342	8.120841
74	1.269504	7.000092
75	1.538556	8.540853
76	1.293332	7.256384
77	1.322727	7.409595
78	1.260749	7.044186
79	1.277209	7.328699
80	1.297907	6.9675
81	1.262611	6.941225
82	1.260993	7.091926
83	1.28397	6.978943
84	1.33735	6.972438
85	1.271859	7.205084
86	1.27148	7.028443

87	1.338339	7.400482
88	1.262129	7.176164
89	1.27725	6.911622
90	1.272559	6.962362
91	1.284783	6.98869
92	1.2911	7.27655
93	1.664811	8.869362
94	1.484787	8.168915
95	1.261334	7.125813
96	1.365273	6.989765
97	1.256294	7.086614
98	1.257312	7.097563
99	1.299519	7.3769
100	1.27778	6.961551