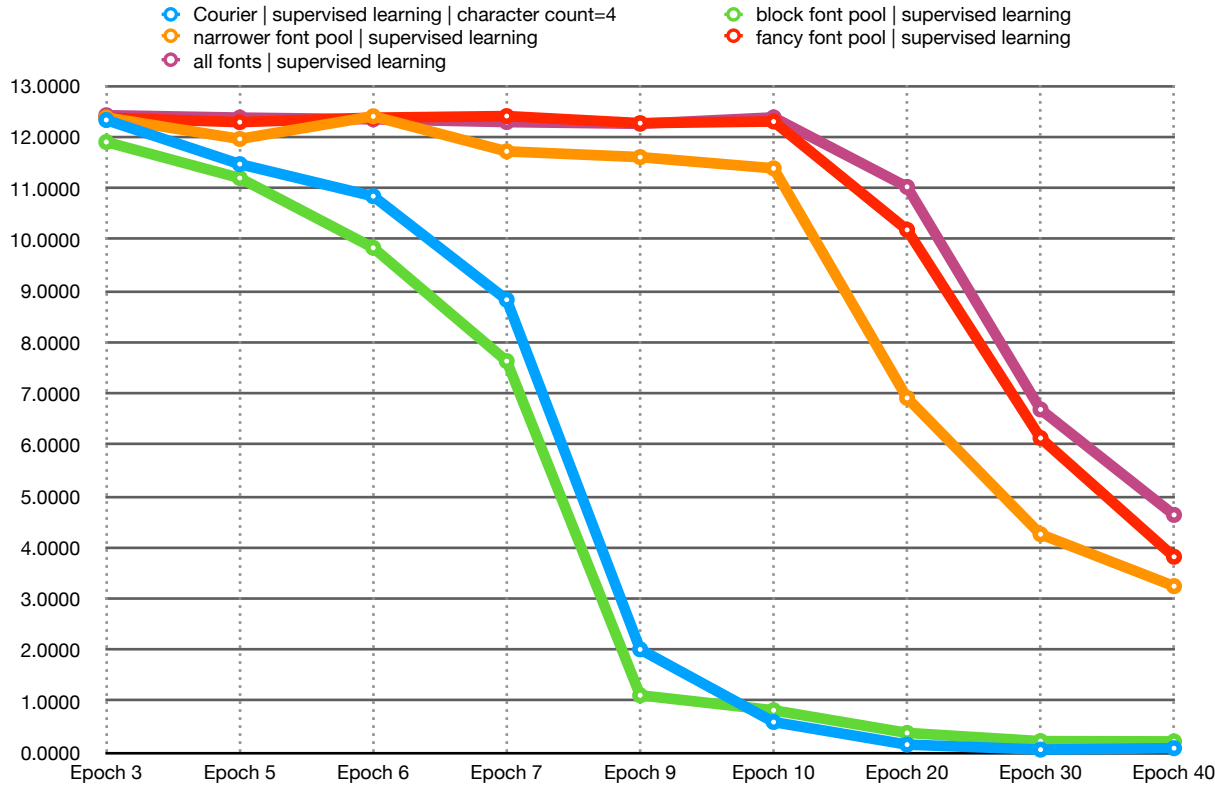
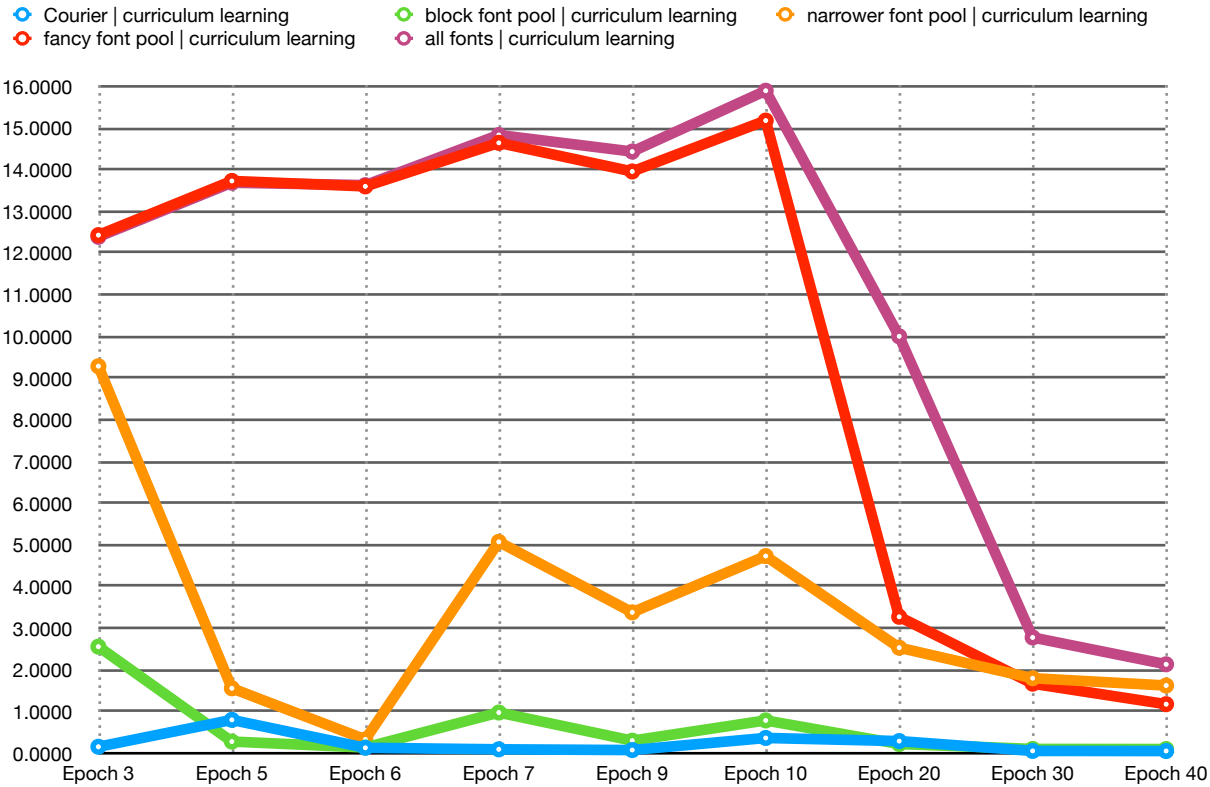


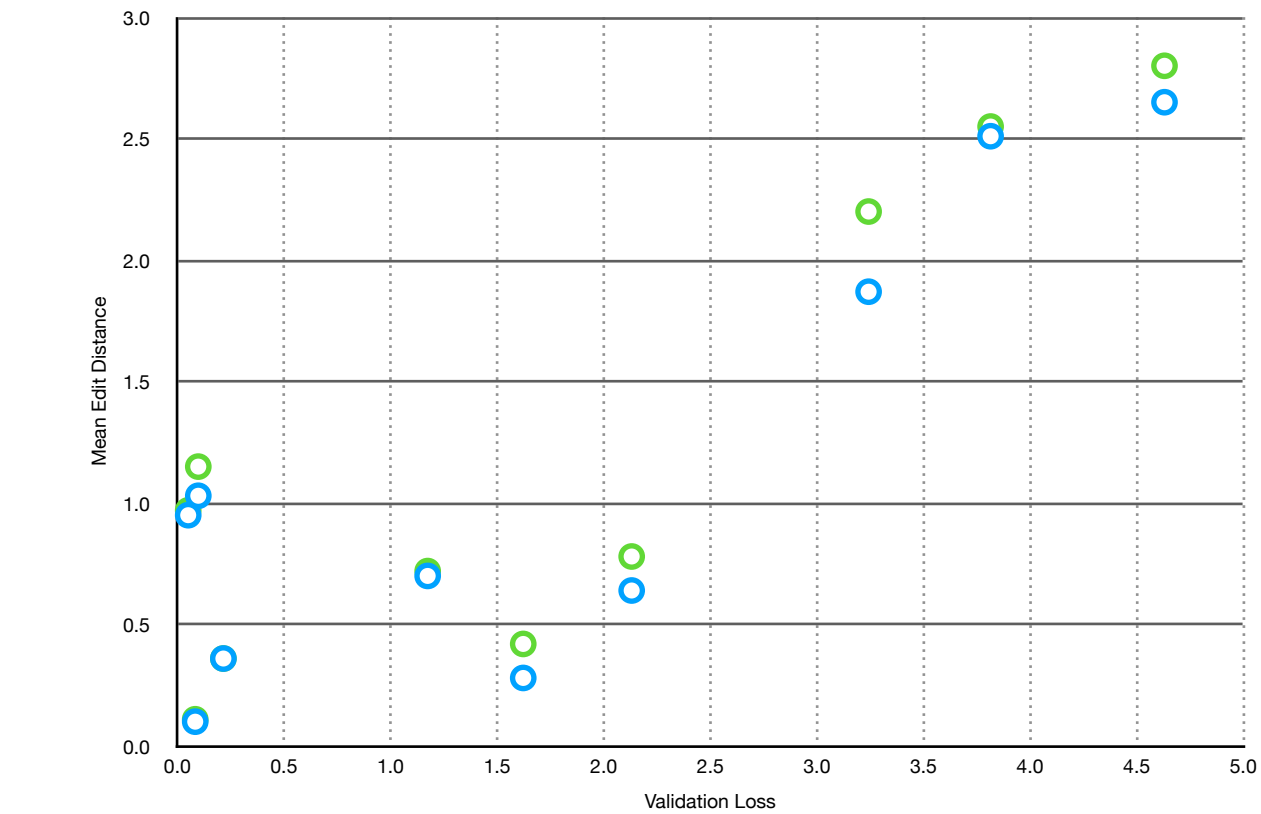
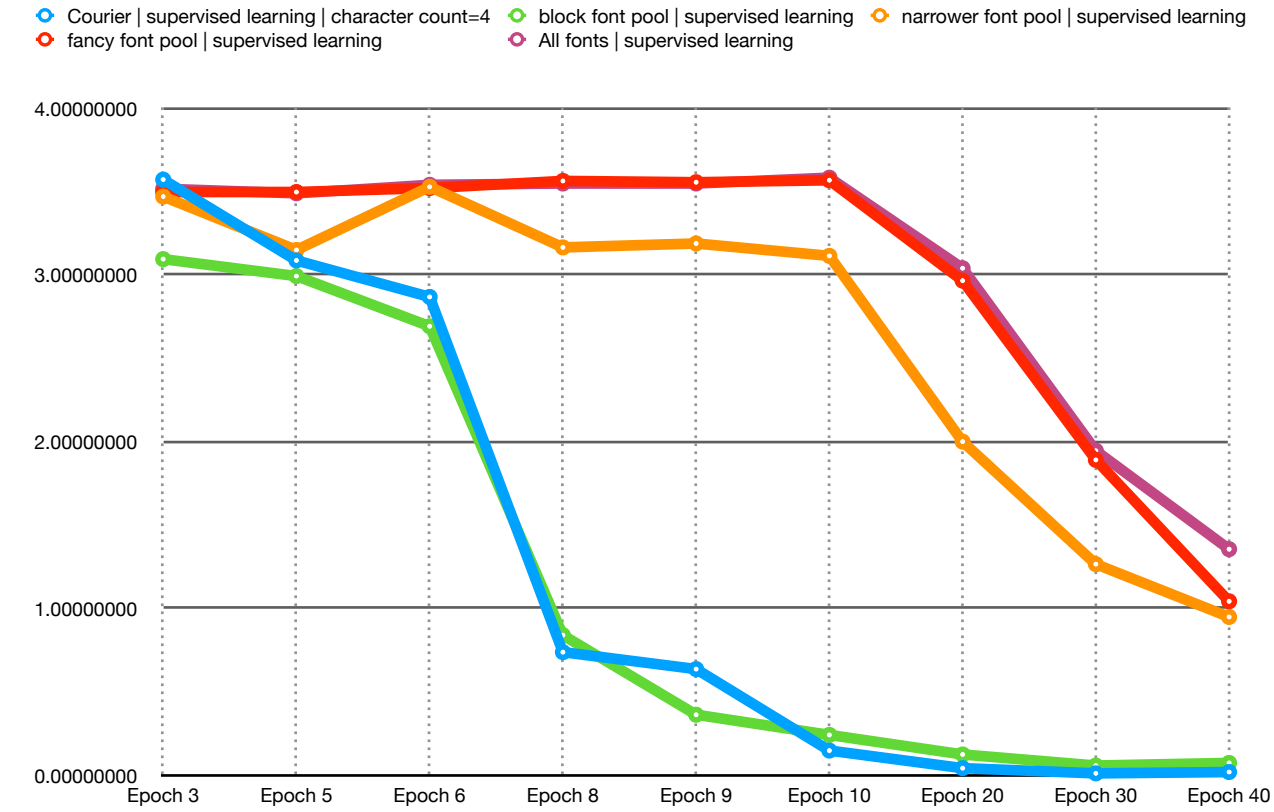
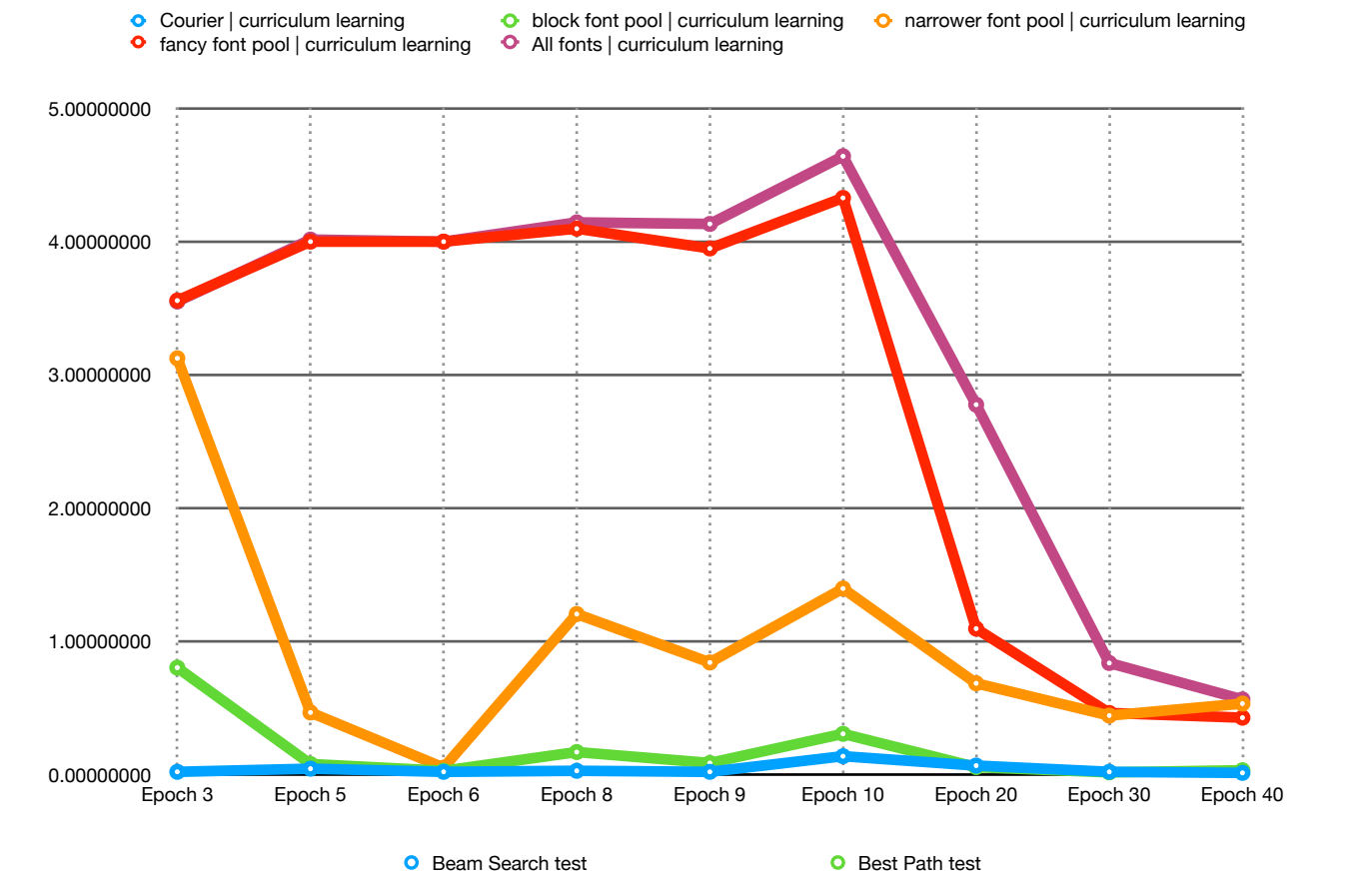
Validation loss

	Epoch 3	Epoch 5	Epoch 6	Epoch 7	Epoch 9	Epoch 10	Epoch 20	Epoch 30	Epoch 40
Courier curriculum learning	0.1530	0.7975	0.1281	0.0914	0.0737	0.3639	0.2887	0.0528	0.0505
block font pool curriculum learning	2.5540	0.2776	0.1344	0.9741	0.2992	0.7845	0.2194	0.1003	0.0978
narrower font pool curriculum learning	9.2797	1.5558	0.3288	5.0668	3.3771	4.7262	2.5296	1.7967	1.6221
fancy font pool curriculum learning	12.4254	13.7247	13.5944	14.6387	13.9520	15.1731	3.2707	1.6661	1.1738
All fonts curriculum learning	12.3840	13.6824	13.6243	14.8265	14.4291	15.8887	9.9975	2.7746	2.1308
Courier supervised learning character count=4	12.3258	11.4664	10.8408	8.8234	2.0095	0.5933	0.1537	0.0560	0.0834
block font pool supervised learning	11.8974	11.1956	9.8356	7.6282	1.1148	0.8223	0.3814	0.2207	0.2155
narrower font pool supervised learning	12.3748	11.9571	12.3984	11.7155	11.6029	11.3843	6.9102	4.2530	3.2422
fancy font pool supervised learning	12.3694	12.2843	12.3715	12.4025	12.2651	12.2973	10.1852	6.1285	3.8145
All fonts supervised learning	12.4189	12.3729	12.3399	12.2861	12.2525	12.3765	11.0228	6.6851	4.6302



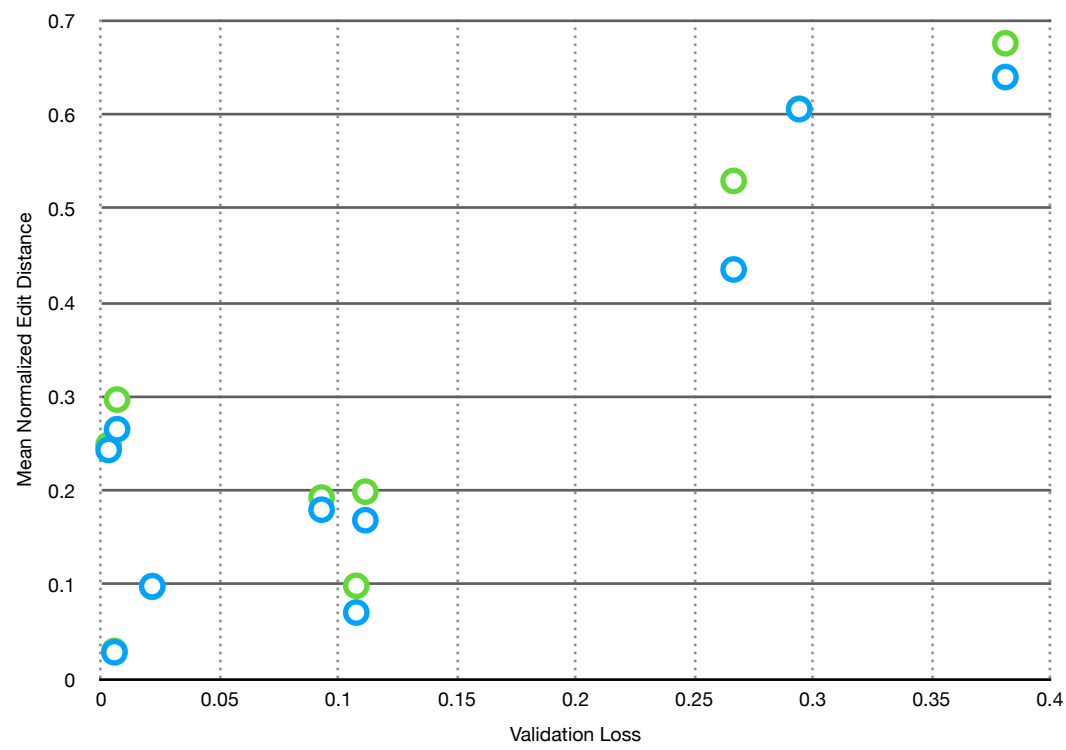
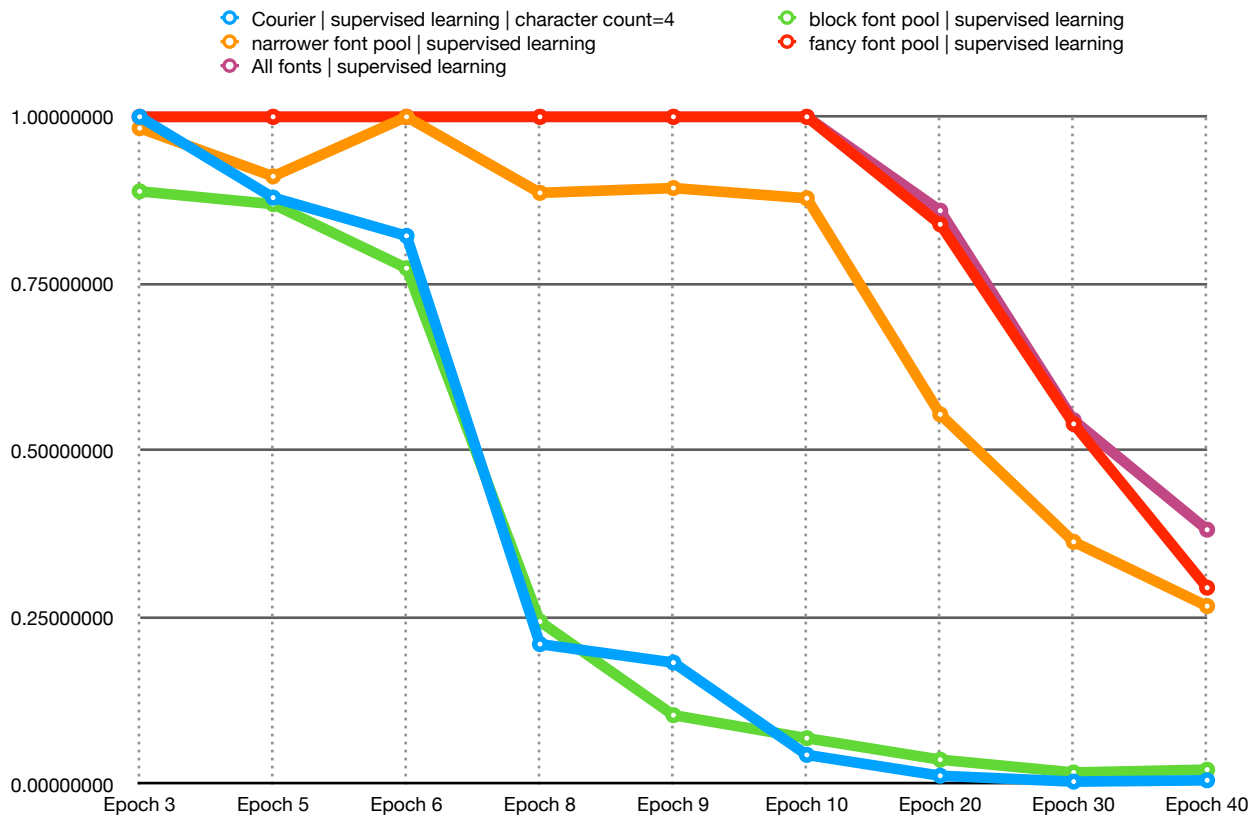
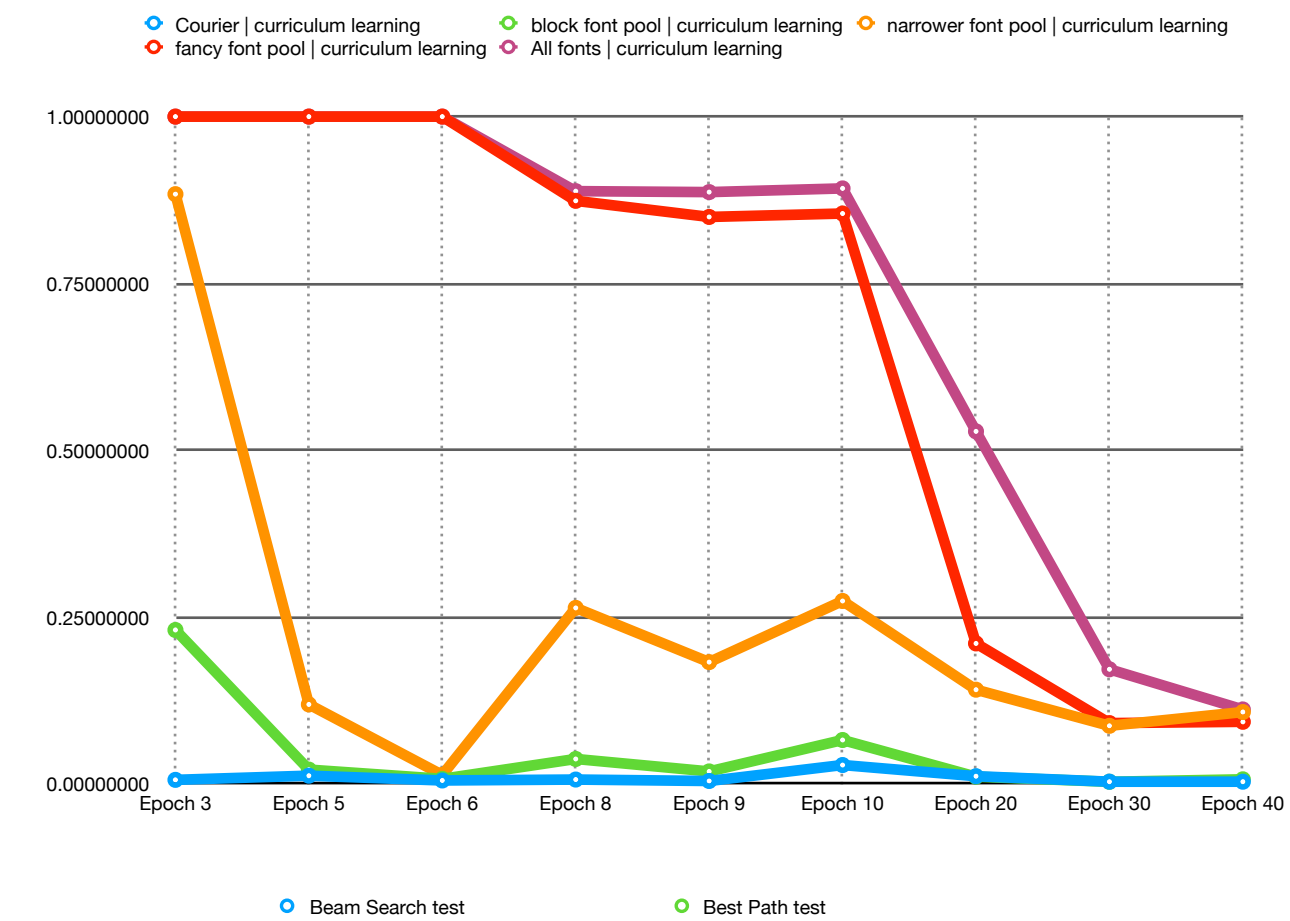
Mean edit distance

	Epoch 3	Epoch 5	Epoch 6	Epoch 8	Epoch 9	Epoch 10	Epoch 20	Epoch 30	Epoch 40	Beam Search test	Best Path test
Courier curriculum learning	0.01953125	0.04296875	0.01953125	0.02734375	0.01953125	0.13671875	0.06640625	0.01953125	0.01171875	0.95000000	0.97000000
block font pool curriculum learning	0.80078125	0.07812500	0.02734375	0.16796875	0.08593750	0.30468750	0.05468750	0.01562500	0.03125000	1.03000000	1.15000000
narrower font pool curriculum learning	3.12109375	0.46484375	0.05078125	1.20312500	0.83984375	1.39453125	0.68359375	0.44140625	0.53125000	0.28000000	0.42000000
fancy font pool curriculum learning	3.55468750	3.99609375	3.99609375	4.09375000	3.94531250	4.32421875	1.09375000	0.46093750	0.42578125	0.70000000	0.72000000
All fonts curriculum learning	3.54687500	4.01171875	3.99609375	4.14062500	4.12890625	4.63671875	2.77343750	0.83593750	0.56250000	0.64000000	0.78000000
Courier supervised learning character count=4	3.57031250	3.08593750	2.86718750	0.73828125	0.63671875	0.14843750	0.04296875	0.01171875	0.01953125	0.10000000	0.11000000
block font pool supervised learning	3.09375000	2.99218750	2.69140625	0.83984375	0.36328125	0.24218750	0.12500000	0.05859375	0.07421875	0.36000000	0.36000000
narrower font pool supervised learning	3.46875000	3.14843750	3.52734375	3.16406250	3.18750000	3.11328125	2.00000000	1.26562500	0.94921875	1.87000000	2.20000000
fancy font pool supervised learning	3.49609375	3.49609375	3.51953125	3.56250000	3.55468750	3.56640625	2.96484375	1.89062500	1.04296875	2.51000000	2.55000000
All fonts supervised learning	3.51562500	3.48828125	3.53906250	3.54687500	3.54687500	3.58203125	3.03906250	1.94531250	1.35546875	2.65000000	2.80000000



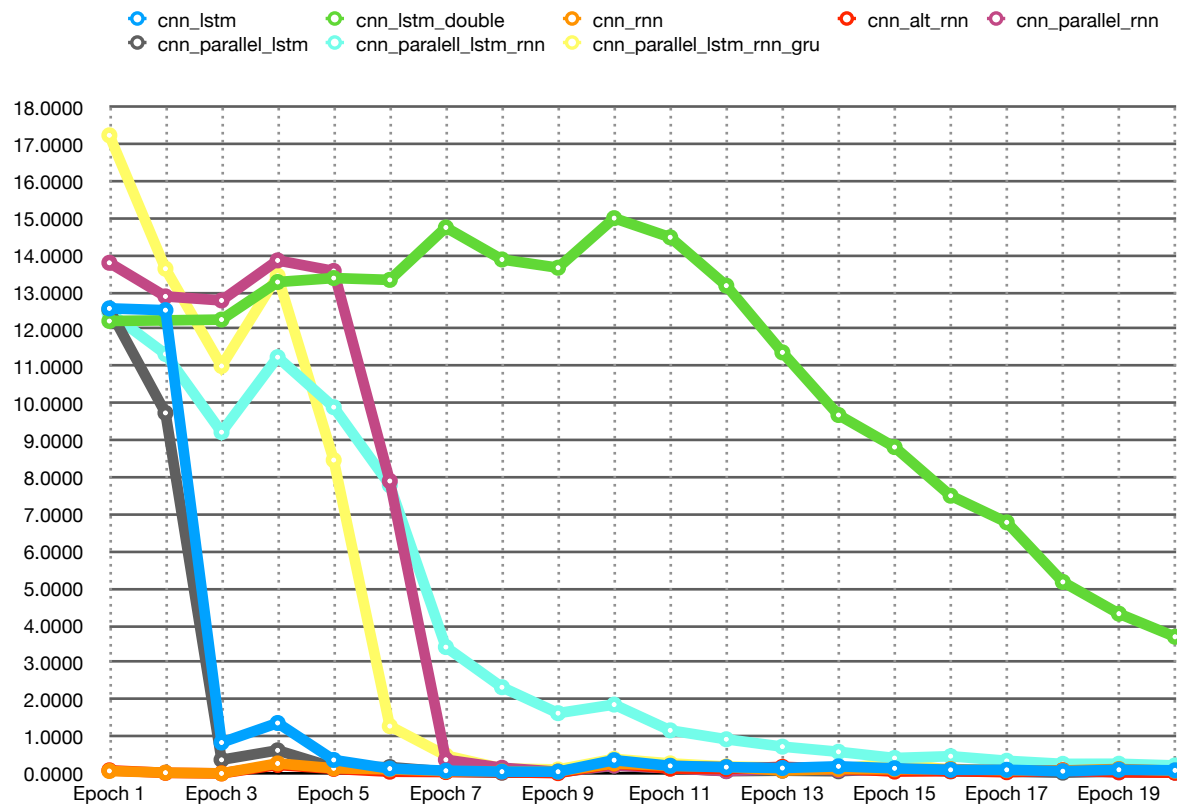
Mean normalized edit distance

	Epoch 3	Epoch 5	Epoch 6	Epoch 8	Epoch 9	Epoch 10	Epoch 20	Epoch 30	Epoch 40	Beam Search test	Best Path test
Courier curriculum learning	0.00585937	0.01210938	0.00494792	0.00631510	0.00416667	0.02808315	0.01134208	0.00309710	0.00309245	0.24345238	0.24903571
block font pool curriculum learning	0.23046875	0.02122396	0.00735677	0.03717448	0.01848958	0.06559710	0.01059338	0.00296689	0.00664993	0.26553571	0.29703571
narrower font pool curriculum learning	0.88378906	0.11894531	0.01321615	0.26360677	0.18235677	0.27400484	0.14102493	0.08688616	0.10750558	0.07060714	0.09903571
fancy font pool curriculum learning	1.00000000	1.00000000	1.00000000	0.87376302	0.84960938	0.85472470	0.21034226	0.09094122	0.09288504	0.17996429	0.19285714
All fonts curriculum learning	1.00000000	1.00000000	1.00000000	0.88828125	0.88684896	0.89237351	0.52819010	0.17160528	0.11133743	0.16877381	0.19915476
Courier supervised learning character count=4	1.00000000	0.87890625	0.82161458	0.20963542	0.18196615	0.04361979	0.01236979	0.00358073	0.00553385	0.02833333	0.02983333
block font pool supervised learning	0.88834635	0.86914062	0.77311198	0.24348958	0.10319010	0.06868490	0.03645833	0.01725260	0.02148437	0.09866667	0.09783333
narrower font pool supervised learning	0.98307292	0.91080729	1.00000000	0.88606771	0.89322917	0.87792969	0.55403646	0.36295573	0.26660156	0.43535714	0.52951190
fancy font pool supervised learning	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	0.83886719	0.53971354	0.29427083	0.60576190	0.60627381
All fonts supervised learning	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	0.85937500	0.54524740	0.38118490	0.63996429	0.67584524



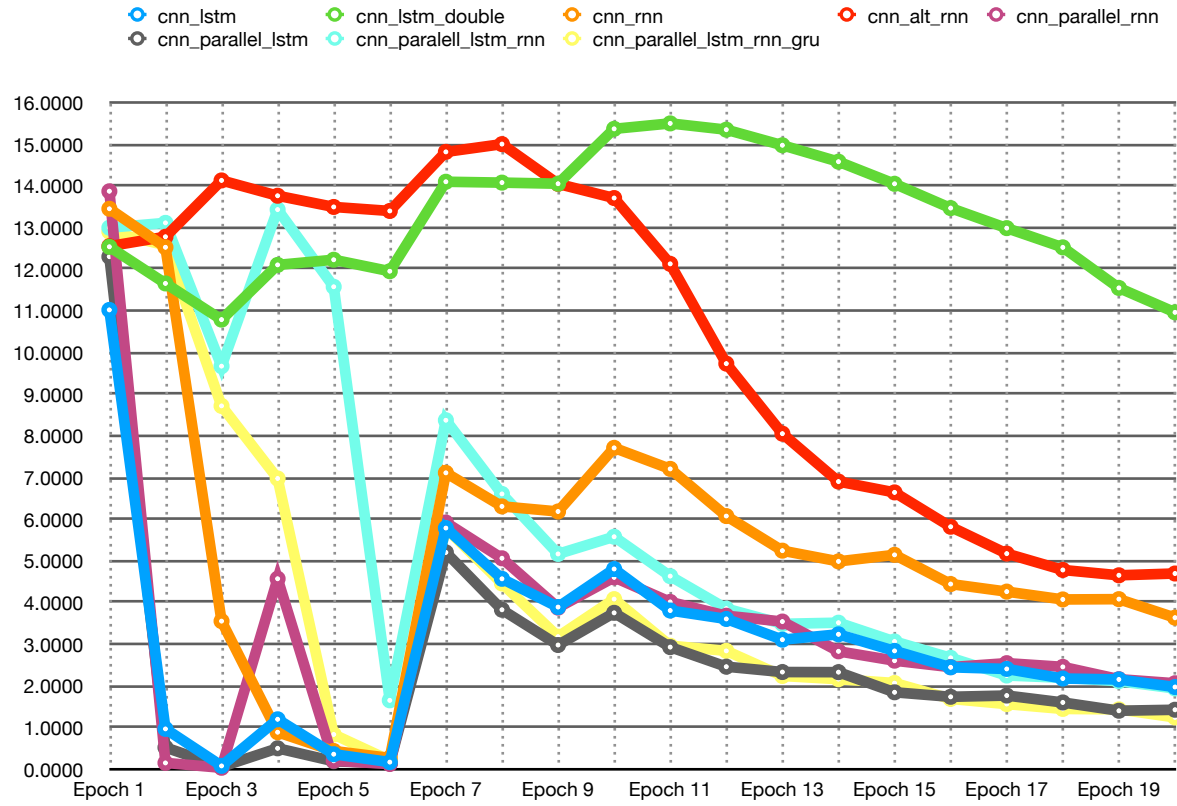
alternative models - validation loss - Courier

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	12.5632	12.5141	0.8398	1.3675	0.3695	0.1366	0.0798	0.0544	0.0523	0.3646	0.2101	0.1753	0.1519	0.1975	0.1441	0.1027	0.1034	0.0659	0.1049	0.0887
cnn_lstm_double	12.2232	12.2387	12.2607	13.2747	13.3813	13.3325	14.7475	13.8831	13.6606	14.9989	14.4824	13.1772	11.3752	9.6844	8.8179	7.5045	6.7860	5.1770	4.3198	3.6970
cnn_rnn	0.0712	0.0265	0.0060	0.2758	0.1434	0.1166	0.0656	0.0642	0.0575	0.2744	0.2114	0.1794	0.0836	0.1253	0.1166	0.1227	0.0909	0.0842	0.1250	0.0770
cnn_alt_rnn	0.0897	0.0211	0.0066	0.2345	0.1282	0.0520	0.0429	0.0387	0.0130	0.2745	0.1345	0.1276	0.1837	0.1313	0.0556	0.0678	0.0383	0.0900	0.0389	0.0251
cnn_parallel_rnn	13.7943	12.8863	12.7773	13.8581	13.5736	7.9020	0.3756	0.1584	0.0506	0.2198	0.1465	0.0693	0.1336	0.0987	0.0827	0.0721	0.0593	0.0828	0.0345	0.0311
cnn_parallel_lstm	12.5324	9.7403	0.3740	0.6292	0.1671	0.1778	0.0546	0.0248	0.0329	0.2153	0.1430	0.0666	0.0800	0.0636	0.1301	0.0624	0.0515	0.0266	0.0549	0.0340
cnn_parallel_lstm_rnn	12.4573	11.3317	9.2203	11.2449	9.8964	7.7912	3.4178	2.3339	1.6332	1.8651	1.1683	0.9278	0.7287	0.5899	0.4221	0.4704	0.3469	0.2634	0.2663	0.2208
cnn_parallel_lstm_rnn_gru	17.2363	13.6340	11.0076	13.4418	8.4665	1.2838	0.4894	0.1426	0.1125	0.3985	0.2766	0.1944	0.1655	0.1205	0.3059	0.0945	0.0959	0.1329	0.0836	0.0576



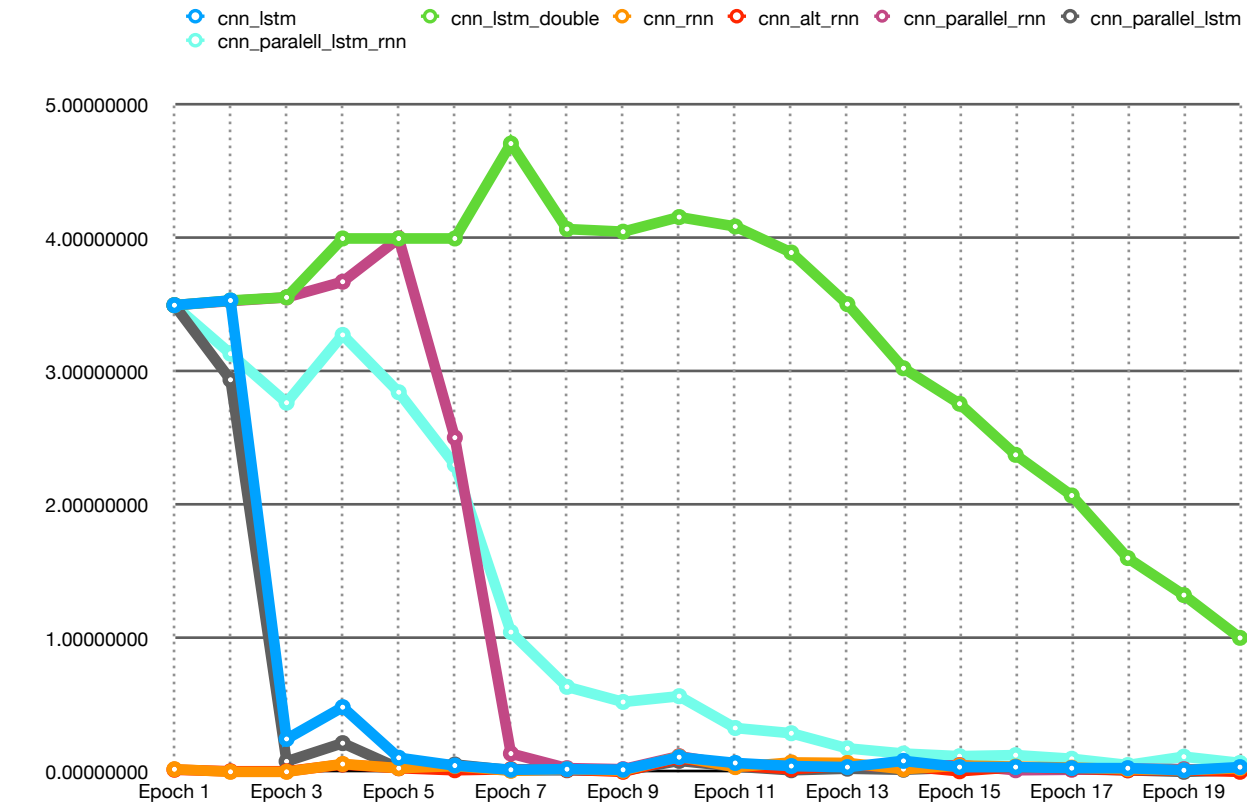
alternative models - validation loss - full

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	11.0221	0.9663	0.0787	1.1965	0.3587	0.1687	5.7868	4.5690	3.8911	4.8035	3.8078	3.6050	3.1082	3.2364	2.8384	2.4449	2.4058	2.1751	2.1529	1.9710
cnn_lstm_double	12.5369	11.6584	10.7899	12.1028	12.2271	11.9516	14.0990	14.0780	14.0520	15.3688	15.4993	15.3488	14.9746	14.5809	14.0491	13.4664	12.9858	12.5236	11.5501	10.9648
cnn_rnn	13.4505	12.5257	3.5532	0.8867	0.4360	0.2685	7.1124	6.3071	6.1843	7.7112	7.2071	6.0746	5.2445	4.9867	5.1440	4.4428	4.2613	4.0731	4.0804	3.6363
cnn_alt_rnn	12.5522	12.7786	14.1308	13.7630	13.4940	13.3979	14.8153	15.0019	14.0484	13.7079	12.1277	9.7338	8.0525	6.9035	6.6427	5.8185	5.1735	4.7811	4.6528	4.6960
cnn_parallel_rnn	13.8703	0.1502	0.0332	4.5705	0.2009	0.1237	5.9193	5.0611	3.8768	4.6034	4.0138	3.6827	3.5428	2.8282	2.6042	2.4488	2.5440	2.4552	2.1595	2.0616
cnn_parallel_lstm	12.3008	0.5207	0.0571	0.5002	0.1899	0.1377	5.2019	3.8264	2.9797	3.7523	2.9291	2.4597	2.3311	2.3278	1.8450	1.7366	1.7668	1.6008	1.4022	1.4258
cnn_parallel_lstm_rnn	12.9961	13.1118	9.6722	13.4311	11.5780	1.6524	8.3750	6.6052	5.1659	5.5785	4.6322	3.8531	3.4878	3.5154	3.0648	2.6720	2.2480	2.1945	2.1118	1.9369
cnn_parallel_lstm_rnn_gru	12.9012	12.5732	8.7182	6.9766	0.8326	0.2084	5.7842	4.4577	3.1805	4.0806	2.9634	2.8397	2.2366	2.1598	2.0677	1.6867	1.5618	1.4459	1.4347	1.2422



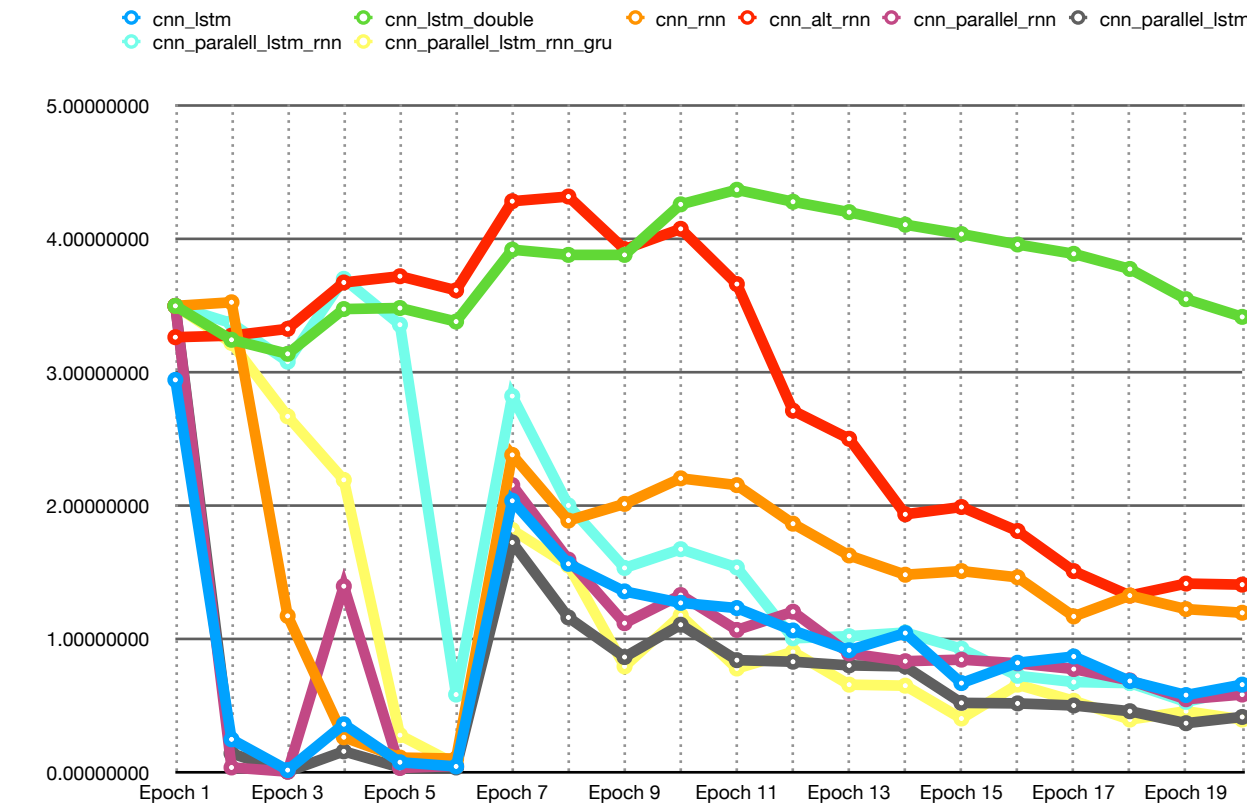
alternative models - mean edit distance

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	3.49609375	3.53125000	0.24609375	0.48437500	0.10546875	0.04687500	0.01562500	0.01953125	0.01562500	0.10937500	0.06640625	0.04296875	0.03515625	0.08203125	0.03515625	0.03515625	0.02734375	0.02734375	0.01171875	0.03515625
cnn_lstm_double	3.49609375	3.53125000	3.55468750	3.99609375	3.99609375	3.99609375	4.70703125	4.06640625	4.04687500	4.15625000	4.08593750	3.89062500	3.50390625	3.02343750	2.75781250	2.37500000	2.07031250	1.60156250	1.32421875	1.00390625
cnn_rnn	0.01953125	0.00000000	0.00000000	0.05859375	0.02734375	0.04296875	0.00781250	0.01953125	0.00781250	0.11328125	0.03515625	0.07031250	0.06640625	0.01953125	0.04687500	0.03906250	0.03125000	0.01953125	0.01171875	0.02734375
cnn_alt_rnn	0.01562500	0.00390625	0.00390625	0.05468750	0.02734375	0.01171875	0.01953125	0.01562500	0.00000000	0.10156250	0.04687500	0.01953125	0.04687500	0.04296875	0.00390625	0.03515625	0.02343750	0.01171875	0.01171875	0.00000000
cnn_parallel_rnn	3.49609375	3.52734375	3.55468750	3.67187500	3.99609375	2.50390625	0.13671875	0.02734375	0.01953125	0.11718750	0.04687500	0.03515625	0.05078125	0.03515625	0.05078125	0.01171875	0.01562500	0.02343750	0.01953125	0.01171875
cnn_parallel_lstm	3.49609375	2.93750000	0.07812500	0.21484375	0.02734375	0.05468750	0.01171875	0.01171875	0.00781250	0.08203125	0.03906250	0.01171875	0.02343750	0.01562500	0.03125000	0.02343750	0.01953125	0.01171875	0.00000000	0.01171875
cnn_parallel_lstm_rnn	3.49609375	3.13281250	2.76562500	3.27343750	2.84375000	2.30078125	1.04687500	0.63671875	0.52343750	0.56640625	0.32812500	0.28906250	0.17578125	0.13671875	0.11718750	0.12500000	0.09765625	0.05078125	0.11328125	0.06640625
cnn_parallel_lstm_rnn_gru	3.49609375	3.32421875	2.91796875	3.57812500	2.81250000	0.42578125	0.15234375	0.01562500	0.01953125	0.08593750	0.10546875	0.05078125	0.04296875	0.05859375	0.09375000	0.02734375	0.01562500	0.05859375	0.00390625	0.03125000



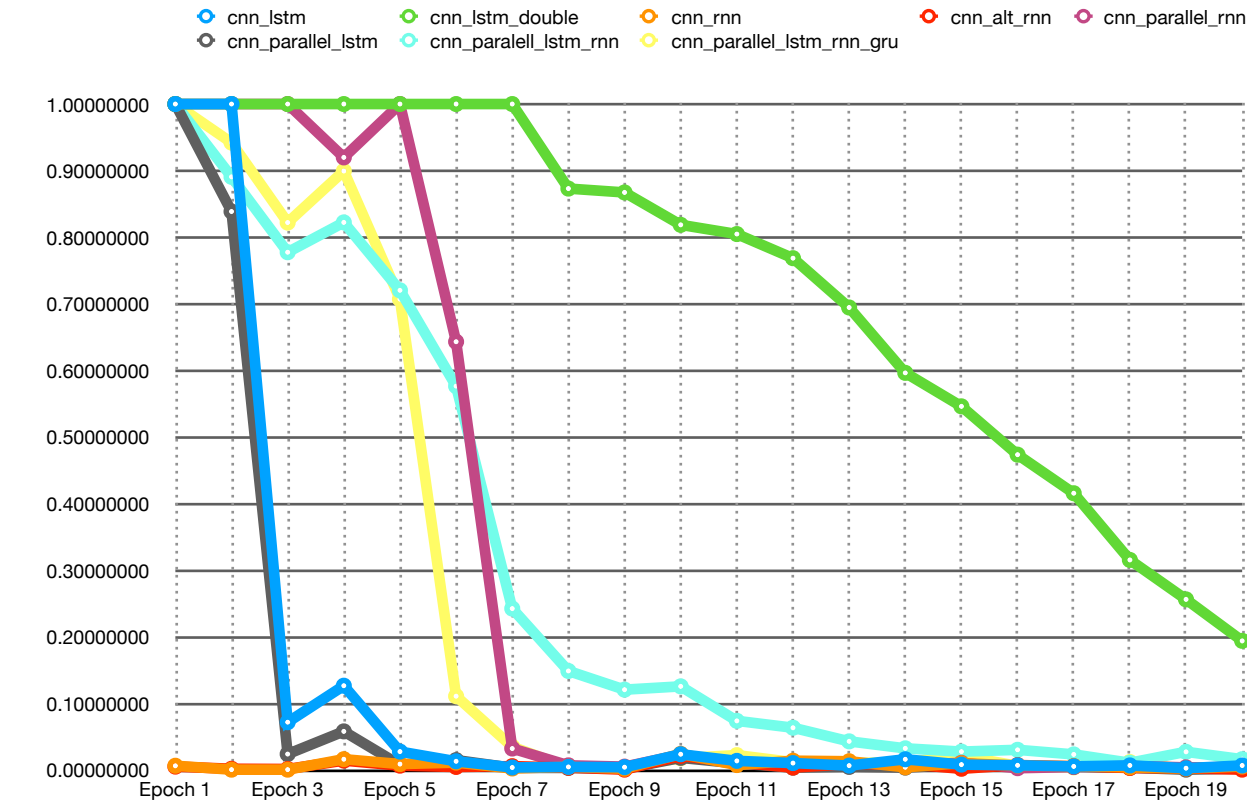
alternative models - validation loss - full

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	2.94140625	0.24609375	0.01562500	0.35937500	0.07421875	0.04296875	2.03515625	1.56250000	1.35546875	1.26953125	1.23046875	1.06250000	0.91406250	1.04296875	0.66796875	0.82031250	0.86718750	0.68359375	0.57812500	0.65625000
cnn_lstm_double	3.49609375	3.24218750	3.13671875	3.47265625	3.48046875	3.37890625	3.91796875	3.87890625	3.87890625	4.25781250	4.36718750	4.27734375	4.19921875	4.10546875	4.03515625	3.95703125	3.88671875	3.77343750	3.54687500	3.41406250
cnn_rnn	3.49609375	3.52343750	1.17187500	0.26171875	0.10937500	0.10156250	2.37890625	1.88671875	2.01171875	2.20312500	2.15234375	1.86328125	1.62500000	1.48046875	1.50781250	1.46093750	1.16796875	1.32421875	1.22265625	1.19531250
cnn_alt_rnn	3.26171875	3.27343750	3.32421875	3.67187500	3.71875000	3.61328125	4.28125000	4.31640625	3.92187500	4.07421875	3.66015625	2.71093750	2.50000000	1.93359375	1.98828125	1.80859375	1.50781250	1.32421875	1.41406250	1.40625000
cnn_parallel_rnn	3.49609375	0.03515625	0.00390625	1.39453125	0.03125000	0.04687500	2.15234375	1.59375000	1.11718750	1.32812500	1.06640625	1.20312500	0.89062500	0.83203125	0.84375000	0.81640625	0.77343750	0.68750000	0.54687500	0.58203125
cnn_parallel_lstm	3.49609375	0.14062500	0.00390625	0.15625000	0.03515625	0.03515625	1.72265625	1.16015625	0.86328125	1.10546875	0.83984375	0.82812500	0.80078125	0.79296875	0.51953125	0.51562500	0.50000000	0.45703125	0.36718750	0.41406250
cnn_parallel_lstm_rnn	3.49609375	3.36718750	3.07812500	3.69921875	3.35546875	0.58203125	2.82031250	2.00000000	1.53125000	1.67187500	1.53515625	1.00390625	1.01953125	1.04687500	0.92578125	0.72265625	0.67578125	0.66796875	0.52734375	0.62109375
cnn_parallel_lstm_rnn_gru	3.49609375	3.21875	2.66796875	2.19140625	0.27734375	0.05859375	1.81640625	1.55078125	0.79296875	1.17578125	0.77734375	0.90234375	0.65625	0.6484375	0.40234375	0.65625	0.53515625	0.39453125	0.45703125	0.39453125



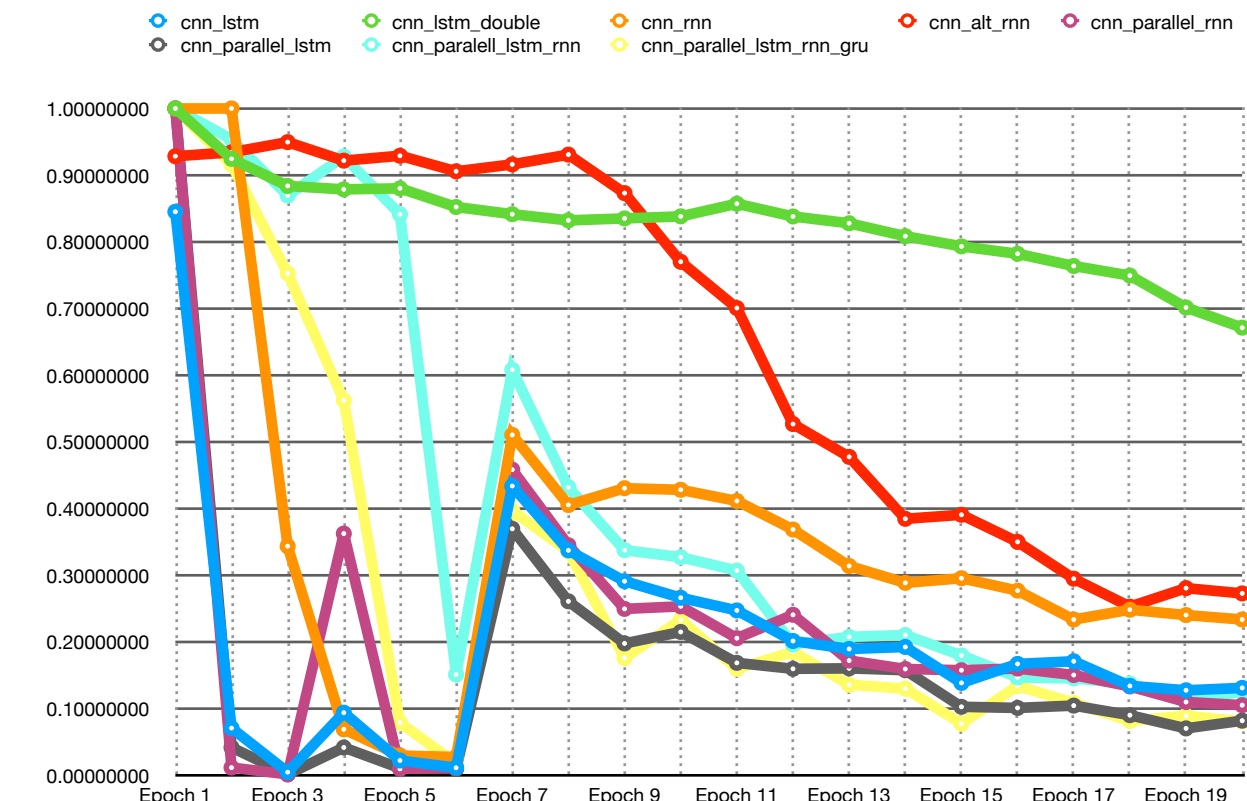
alternative models - mean normalised edit distance

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	1.00000000	1.00000000	0.07128906	0.12610677	0.02714844	0.01256510	0.00325521	0.00410156	0.00371094	0.02313988	0.01318824	0.00985863	0.00606399	0.01556920	0.00757068	0.00650112	0.00486421	0.00635231	0.00218564	0.00626860
cnn_lstm_double	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	0.87298177	0.86718750	0.81850818	0.80465030	0.76840588	0.69433594	0.59612165	0.54578683	0.47320499	0.41527158	0.31507626	0.25578497	0.19352679
cnn_rnn	0.00585938	0.00000000	0.00000000	0.01569010	0.00839844	0.01054688	0.00175781	0.00423177	0.00130208	0.02367932	0.00688244	0.01342076	0.01258371	0.00352493	0.00965402	0.00618490	0.00525484	0.00339472	0.00167411	0.00463170
cnn_alt_rnn	0.00455729	0.00130208	0.00097656	0.01360677	0.00598958	0.00403646	0.00520833	0.00299479	0.00000000	0.02060082	0.01072359	0.00306920	0.00835193	0.00845424	0.00130208	0.00691034	0.00492932	0.00251116	0.00189732	0.00000000
cnn_parallel_rnn	1.00000000	1.00000000	1.00000000	0.91979167	1.00000000	0.64290365	0.03170573	0.00644531	0.00449219	0.02247954	0.00897507	0.00739397	0.00978423	0.00691034	0.01021205	0.00218564	0.00390625	0.00547805	0.00339472	0.00358073
cnn_parallel_lstm	1.00000000	0.83854167	0.02343750	0.05748698	0.00703125	0.01432292	0.00273438	0.00260417	0.00130208	0.01773624	0.00944940	0.00305990	0.00408296	0.00306920	0.00730097	0.00528274	0.00429688	0.00283668	0.00000000	0.00176711
cnn_parallel_lstm_rnn	1.00000000	0.89062500	0.77734375	0.82213542	0.72011719	0.57623698	0.24199219	0.14824219	0.12018229	0.12509301	0.07332589	0.06296503	0.04250372	0.03199405	0.02707403	0.02978981	0.02287946	0.01030506	0.02678571	0.01567150
cnn_parallel_lstm_rnn_gru	1.00000000	0.94205729	0.82194010	0.89934896	0.70683594	0.11035156	0.03444010	0.00338542	0.00364583	0.01720610	0.02180990	0.01127232	0.00996094	0.01121652	0.02070313	0.00567336	0.00339472	0.01144903	0.00078125	0.00654762



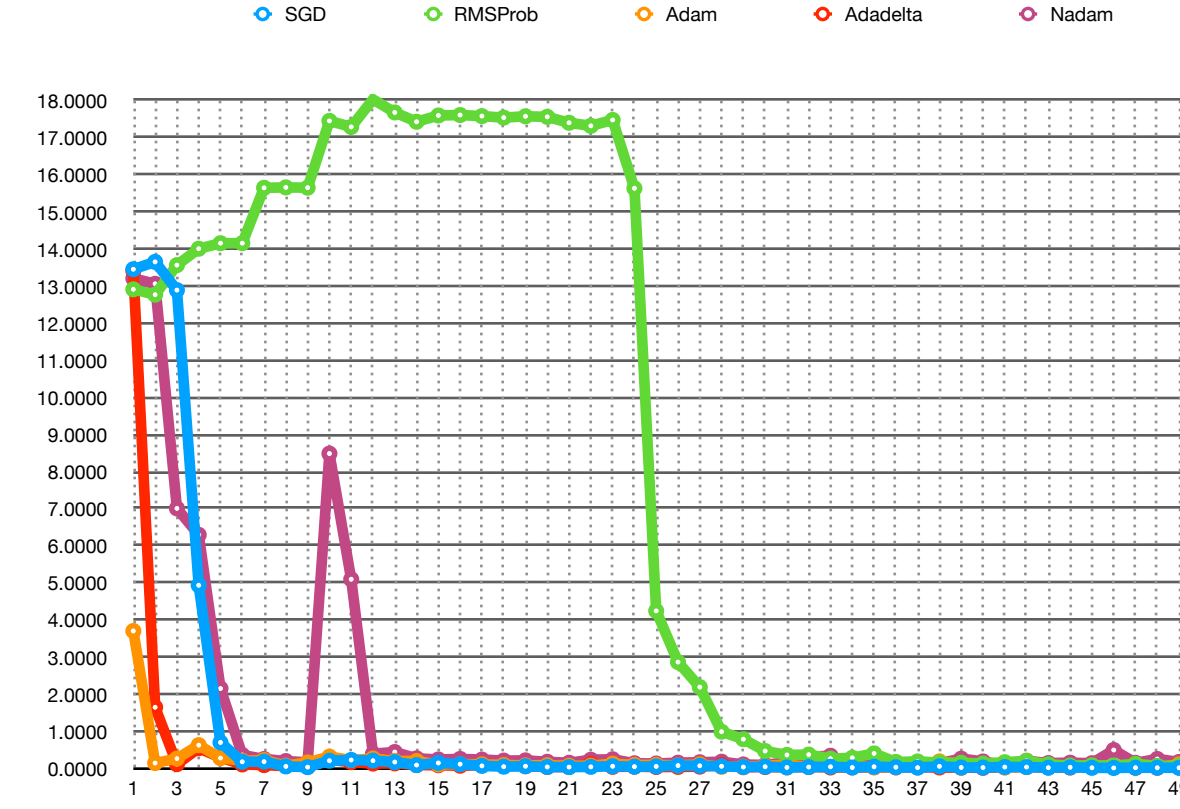
alternative models - validation loss - full

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5	Epoch 6	Epoch 7	Epoch 8	Epoch 9	Epoch 10	Epoch 11	Epoch 12	Epoch 13	Epoch 14	Epoch 15	Epoch 16	Epoch 17	Epoch 18	Epoch 19	Epoche 20
cnn_lstm	0.84505208	0.07063802	0.00455729	0.09375000	0.02200521	0.01119792	0.43372396	0.33717448	0.29095052	0.26613653	0.24710751	0.20127418	0.18930432	0.19232701	0.13842076	0.16688988	0.17085193	0.13394717	0.12734375	0.13092448
cnn_lstm_double	1.00000000	0.92447917	0.88378906	0.87864583	0.88020833	0.85221354	0.84140625	0.83216146	0.83509115	0.83818824	0.85713356	0.83802083	0.82782738	0.80845424	0.79314546	0.78206845	0.76373698	0.74936756	0.70144159	0.67123326
cnn_rnn	1.00000000	1.00000000	0.34342448	0.06881510	0.02949219	0.02721354	0.51035156	0.40527344	0.43040365	0.42805990	0.41130952	0.36843378	0.31377418	0.28847656	0.29541481	0.27679501	0.23346354	0.24821429	0.24017857	0.23348214
cnn_alt_rnn	0.92838542	0.93424479	0.94954427	0.92174479	0.92910156	0.90572917	0.91614583	0.93079427	0.87304688	0.77007999	0.70062314	0.52670201	0.47744606	0.38454241	0.39059710	0.34994420	0.29469866	0.25279018	0.28054315	0.27263765
cnn_parallel_rnn	1.00000000	0.01139323	0.00130208	0.36236979	0.00944010	0.01100260	0.45826823	0.34485677	0.24941406	0.25322731	0.20546875	0.24055990	0.17192150	0.15929129	0.15744978	0.15996094	0.15023251	0.13311942	0.10977493	0.10501302
cnn_parallel_lstm	1.00000000	0.04166667	0.00130208	0.04153646	0.01048177	0.00930990	0.36953125	0.26074219	0.19765625	0.21483445	0.16846168	0.15955171	0.16025856	0.15742188	0.10256696	0.10090216	0.10435268	0.08999256	0.07019159	0.08177083
cnn_parallel_lstm_rnn	1.00000000	0.95377604	0.86946615	0.92786458	0.84127604	0.15097656	0.60787760	0.43177083	0.33756510	0.32696243	0.30688244	0.19636347	0.20746838	0.21023065	0.17955729	0.14673549	0.14521949	0.13728609	0.11021205	0.12552083
cnn_parallel_lstm_rnn_gru	1.00000000	0.91601563	0.75260417	0.56217448	0.07877604	0.01738281	0.39667969	0.33593750	0.17571615	0.23295201	0.15958891	0.18499814	0.13570499	0.12979911	0.07735305	0.13389137	0.10851004	0.08128720	0.08909970	0.08062686



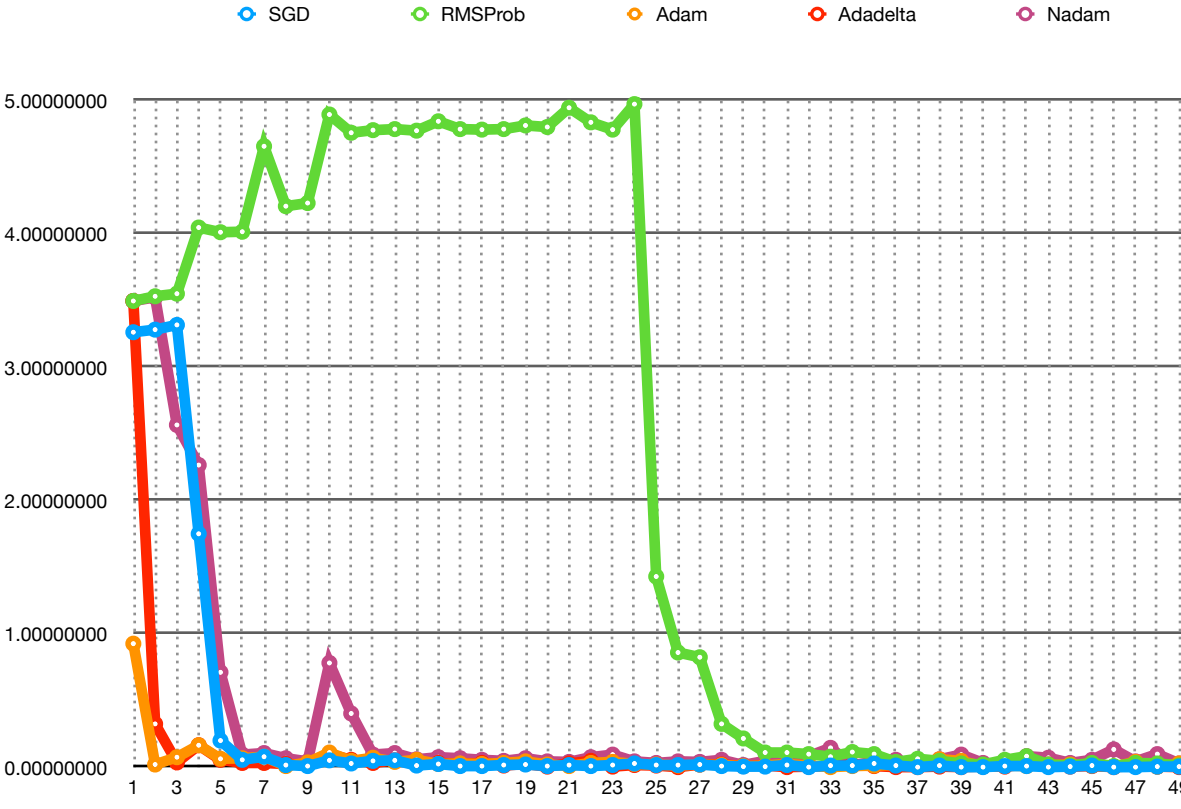
optimizers - validation loss

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	
SGD	13.4551	13.6523	12.8912	4.9331	0.6942	0.1731	0.1762	0.0480	0.0291	0.2013	0.2215	0.2031	0.1651	0.0840	0.1421	0.1087	0.0630	0.0411	0.0525	0.0331	0.0297	0.0363	0.0517	0.0415	0.0483	0.0712	0.0647	0.0524	0.0317	0.0406	0.0208	0.0314	0.0383	0.0186	0.0403	0.0267	0.0152	0.0500	0.0194	0.0171	0.0310	0.0312	0.0136	0.0239	0.0113	0.0070	0.0139	0.0134	0.0112	0.0109
RMSProb	12.9123	12.7688	13.5659	14.0078	14.1557	14.1569	15.6501	15.6609	15.6541	17.4550	17.2914	18.0348	17.6825	17.4312	17.6004	17.6126	17.5831	17.5428	17.5783	17.5631	17.4036	17.3213	17.4802	15.6366	4.2425	2.8620	2.1873	0.9852	0.7819	0.4637	0.3577	0.3667	0.2571	0.2802	0.3979	0.1666	0.1819	0.1528	0.1247	0.1620	0.1980	0.1031	0.0701	0.0789	0.0701	0.0628	0.0605	0.1074		
Adam	3.6997	0.1386	0.2591	0.6220	0.2725	0.1997	0.2200	0.0694	0.1572	0.3118	0.2179	0.2629	0.1943	0.1960	0.0985	0.1100	0.1045	0.0863	0.0768	0.0798	0.0667	0.0699	0.1218	0.0891	0.0893	0.0758	0.1035	0.0392	0.0404	0.0634	0.1007	0.0322	0.0593	0.0510	0.0322	0.0322	0.0690	0.1828	0.0937	0.0466	0.0195	0.0570	0.0506	0.0545	0.0207	0.0556	0.0750	0.0305	0.1046	0.0293
Adadelta	13.4130	1.6430	0.1086	0.5396	0.2867	0.1016	0.0836	0.0593	0.0365	0.2269	0.1623	0.1250	0.1304	0.0836	0.0803	0.0673	0.0804	0.0731	0.0541	0.0323	0.0325	0.1120	0.0367	0.0408	0.0327	0.0348	0.0425	0.0818	0.0265	0.0307	0.0251	0.0339	0.0196	0.0221	0.0231	0.0218	0.0256	0.0193	0.0150	0.0108	0.0244	0.0317	0.0196	0.0189	0.0368	0.0216	0.0119	0.0142	0.0180	0.0109
Nadam	13.2077	13.0621	7.0061	6.2924	2.1492	0.3564	0.2481	0.1931	0.1565	8.4832	5.0938	0.3913	0.4360	0.2659	0.2346	0.2496	0.2324	0.2051	0.2105	0.1728	0.1460	0.2285	0.2401	0.1328	0.1269	0.1478	0.1606	0.1752	0.0993	0.0874	0.1632	0.3067	0.3360	0.0908	0.1637	0.1585	0.1255	0.1337	0.2574	0.1814	0.0833	0.2004	0.1389	0.1486	0.1346	0.4907	0.1450	0.2481	0.1692	0.1251



optimizers - mean edit distance

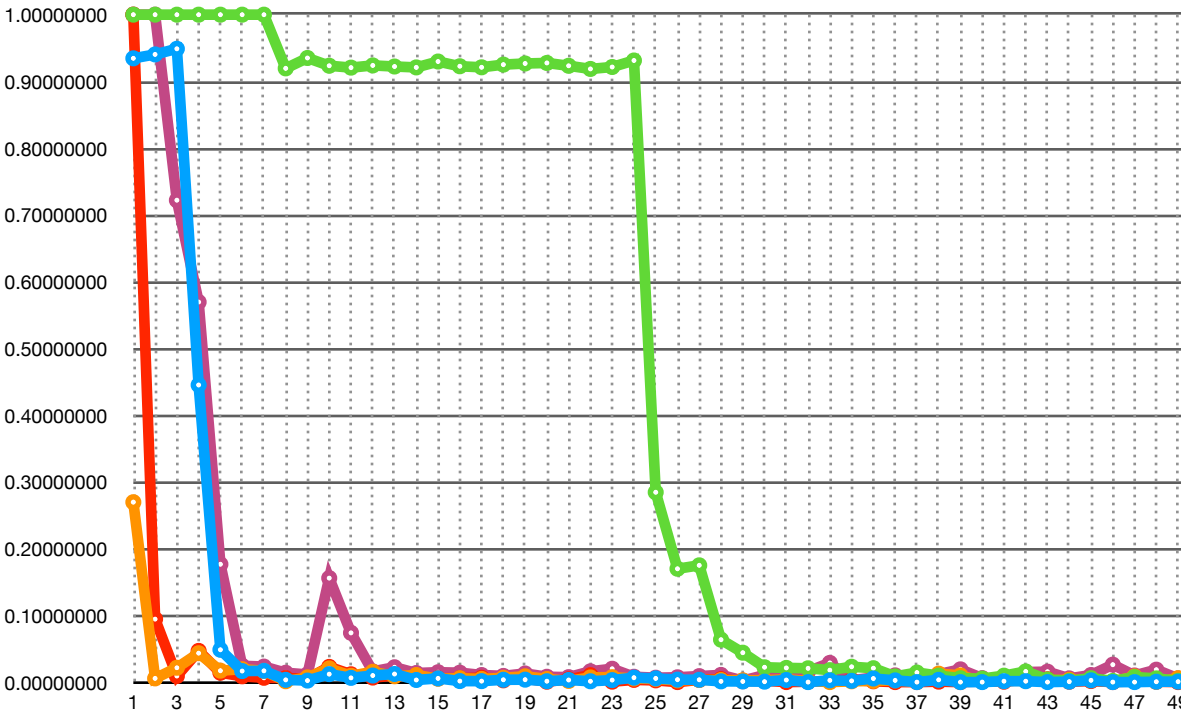
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		
SGD	3.26171875	3.28125000	3.31640625	1.75000000	0.19921875	0.05468750	0.07812500	0.01562500	0.00781250	0.05078125	0.02734375	0.04687500	0.05078125	0.01171875	0.02343750	0.00781250	0.00781250	0.01562500	0.01953125	0.00781250	0.01562500	0.00781250	0.01562500	0.02734375	0.01562500	0.01562500	0.01953125	0.00781250	0.00390625	0.00390625	0.01562500	0.00000000	0.01171875	0.01171875	0.02734375	0.01171875	0.00000000	0.01171875	0.00000000	0.00000000	0.00781250	0.00781250	0.00000000	0.00390625	0.01171875	0.00000000	0.00000000	0.00390625	0.00390625	0.00390625	
MSProb	3.49609375	3.53125000	3.55078125	4.04687500	4.01171875	4.01562500	4.65625000	4.20703125	4.23046875	4.89453125	4.75781250	4.77734375	4.78515625	4.77343750	4.84375000	4.78515625	4.78125000	4.78515625	4.81250000	4.80078125	4.94531250	4.83593750	4.78125000	4.97265625	1.42968750	0.85937500	0.82421875	0.32421875	0.21484375	0.10937500	0.10937500	0.09765625	0.07812500	0.11328125	0.09765625	0.03906250	0.06250000	0.04687500	0.02734375	0.01953125	0.05468750	0.08203125	0.01953125	0.01171875	0.03125000	0.00781250	0.03125000	0.02734375	0.01171875	0.03515625	
Adam	0.92578125	0.01953125	0.07421875	0.16406250	0.06250000	0.06640625	0.07812500	0.00781250	0.03515625	0.10937500	0.04687500	0.07031250	0.03906250	0.05468750	0.02343750	0.02343750	0.02343750	0.03125000	0.03906250	0.01953125	0.00781250	0.03125000	0.03906250	0.02343750	0.01953125	0.01171875	0.01953125	0.01562500	0.00781250	0.01171875	0.02343750	0.01171875	0.00000000	0.00781250	0.01171875	0.01171875	0.01562500	0.00390625	0.05859375	0.04687500	0.00390625	0.01171875	0.00781250	0.01562500	0.01953125	0.01171875	0.00390625	0.03906250	0.00390625	0.02734375	0.01562500
Adadelta	3.49609375	0.32421875	0.03515625	0.16406250	0.05468750	0.03125000	0.03125000	0.02343750	0.01562500	0.09765625	0.05468750	0.03125000	0.05078125	0.03125000	0.03125000	0.02343750	0.03125000	0.01171875	0.02343750	0.00390625	0.02734375	0.04687500	0.00390625	0.01562500	0.01171875	0.00000000	0.01953125	0.01953125	0.00781250	0.01171875	0.00000000	0.00390625	0.00781250	0.01562500	0.00781250	0.00000000	0.00000000	0.00390625	0.00000000	0.01953125	0.01953125	0.00390625	0.00781250	0.00000000	0.00781250	0.00390625	0.00000000	0.00390625			
Nadam	3.49609375	3.52343750	2.56640625	2.26562500	0.71093750	0.09375000	0.10546875	0.06640625	0.04296875	0.78125000	0.40234375	0.09375000	0.10546875	0.05859375	0.07421875	0.06640625	0.05468750	0.04687500	0.06640625	0.04296875	0.03906250	0.07421875	0.09375000	0.04296875	0.03125000	0.04296875	0.03906250	0.05468750	0.01562500	0.04687500	0.02734375	0.08203125	0.14453125	0.01562500	0.03906250	0.05468750	0.01562500	0.05859375	0.09375000	0.03125000	0.02343750	0.08203125	0.07031250	0.03125000	0.05468750	0.13281250	0.04296875	0.09765625	0.02734375	0.01171875	



optimizers - mean normalized edit distance

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
SGD	0.93457031	0.94042969	0.94889323	0.44518229	0.04850260	0.01653646	0.01692708	0.00338542	0.00227865	0.01192336	0.00632440	0.00984003	0.01214658	0.00316220	0.00557106	0.00153460	0.00143229	0.00348772	0.00364583	0.00130208	0.00319010	0.00120908	0.00296689	0.00667783	0.00553385	0.00371094	0.00352493	0.00111607	0.00097656	0.00065104	0.00309710	0.00000000	0.00260417	0.00186012	0.00537574	0.00253906	0.00000000	0.00000000	0.00133929	0.00133929	0.00000000	0.00065104	0.00264137	0.00000000	0.00000000	0.00055804	0.00065104	0.00097656		
MSProb	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	0.91953125	0.93509115	0.92348400	0.92064732	0.92393973	0.92232143	0.92096354	0.92978051	0.92270275	0.92113095	0.92515811	0.92683222	0.92763207	0.92340960	0.91867560	0.92158668	0.93132440	0.28441220	0.16983817	0.17493490	0.06356027	0.04404762	0.02221912	0.02126116	0.02066592	0.01793155	0.02300037	0.02082403	0.00853795	0.01430432	0.00968192	0.00579427	0.00524554	0.00962612	0.01595982	0.00390625	0.00186012	0.00584077	0.00175781	0.00752418	0.00557106	0.00186012	0.00759859
Adam	0.26953125	0.00553385	0.02148438	0.04329427	0.01712240	0.01933594	0.01686198	0.00130208	0.00709635	0.02047991	0.00943080	0.01551339	0.00869606	0.01063058	0.00505022	0.00583147	0.00478981	0.00645461	0.00864955	0.00472470	0.00175781	0.00700335	0.00737537	0.00537574	0.00468750	0.00260417	0.00319940	0.00316220	0.00260417	0.00283668	0.00417597	0.00176711	0.00000000	0.00120908	0.00176711	0.00254836	0.00055804	0.01259301	0.01006324	0.00097656	0.00195313	0.00195313	0.00277158	0.00352493	0.00283668	0.00065104	0.00853795	0.00055804	0.00585938	
Adadelta	1.00000000	0.09440104	0.00911458	0.04674479	0.01406250	0.00865885	0.00644531	0.00598958	0.00520833	0.02278646	0.01170015	0.00678013	0.00968192	0.00784970	0.00573847	0.00580357	0.00645461	0.00264137	0.00537574	0.00055804	0.00422247	0.01036086	0.00065104	0.00329241	0.00260417	0.00000000	0.00343192	0.00446429	0.00133929	0.00199033	0.00000000	0.00055804	0.00186012	0.00319010	0.00120908	0.00000000	0.00000000	0.00065104	0.00000000	0.00097656	0.00055804	0.00394345	0.00426897	0.00055804	0.00156250	0.00000000	0.00097656			
Nadam	1.00000000	1.00000000	0.72200521	0.56940104	0.17656250	0.02441406	0.02324219	0.01399740	0.01139323	0.15582217	0.07380952	0.01602493	0.02223772	0.01361607	0.01476004	0.01408110	0.01059338	0.00926339	0.01290923	0.00798921	0.00741257	0.01616443	0.01998698	0.00799851	0.00658482	0.00718936	0.00895647	0.01077009	0.00223214	0.01050037	0.00544085	0.01623884	0.02877604	0.00267857	0.00685454	0.01008185	0.00394345	0.01183966	0.01907552	0.00593378	0.00502232	0.01504836	0.01561570	0.00552455	0.01063058	0.02614397	0.00993304	0.01861049	0.00538504	0.00186012

SGD RMSProb Adam Adadelta Nadam



final models - summary

final models trained on the full dataset, 16000 images per epoch	cnn_parallel_lstm	cnn_parallel_rnn	cnn_parallel_lstm_rnn	cnn_gru	cnn_parallel_lstm_rnn_gru	cnn_parallel_lstm_rnn	cnn_parallel_lstm_rnn
Parameters:	6,507,036	865,820	7,325,212	4,862,444	12,176,924	7,325,212	7,325,212
Epochs:	60	60	60	60	60	100	200
Final validation loss:	0.6388	0.9367	0.5284	1.4767	0.5782	0.4121	0.2537
Number of correctly predicted words of 1000:	664	7	906	765	901	811	923
Mean edit distance:	0.39200000	1.20400000	0.13500000	0.37500000	0.134	0.26300000	0.08800000
Mean normalized edit distance:	0.08251905	0.24502500	0.02445833	0.07295833	0.02435119	0.05019881	0.01693452
Average time taken to predict a word:	835ms	784ms	860ms	866ms	873ms	837ms	831ms
Tested word:	"intelligence"	"intelligence"	"intelligence"	"intelligence"	"intelligence"	"intelligence"	"intelligence"
Predicted test word:	"jintelligence"	"sintelligence"	"intelligence"	"intelligence"	"intelligence"	"inteligence"	"intelligence"
Test edit distance:	2	1	0	0	1	2	1
Test normalized edit distance:	0.16666667	0.08333333	0.00000000	0.00000000	0.08333333	0.16666667	0.08333333
Number of correctly predicted handwritten words out of 10:							1
Mean edit distance:							3.40000000
Mean normalized edit distance:							0.67666667