

RNN	Model Number	1	2	3	4
	Learning Rate	0.0001			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time (seconds)	30.9508	31.4066	32.6276	36.2480
	Evaluation Loss	0.6924	0.6964	0.6898	0.6933
	Accuracy	0.5176	0.5015	0.5211	0.4989
	Precision	0.5543	0.5009	0.5471	0.4982
	Recall	0.1798	0.8738	0.2448	0.3062
	F1-Score	0.2715	0.6367	0.3383	0.3793
	Evaluation Time (seconds)	5.2650	5.1049	5.5903	6.1391
	AUC	0.5176	0.5015	0.5211	0.4989
LSTM	Model Number	13	14	15	16
	Learning Rate	0.0001			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	96.6725	40.7997	97.0553	39.7601
	Evaluation Loss	0.5122	0.6938	0.4826	0.6948
	Accuracy	0.7543	0.5043	0.7674	0.4990
	Precision	0.7373	0.5343	0.7841	0.4995
	Recall	0.7901	0.0673	0.7381	0.9927
	F1-Score	0.7628	0.1195	0.7604	0.6646
	Evaluation Time	6.1577	5.9761	6.1472	6.3505
	AUC	0.7543	0.5043	0.7674	0.4990
GRU	Model Number	25	26	27	28
	Learning Rate	0.0001			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	29.5157	33.5003	81.5256	35.0322
	Evaluation Loss	0.6882	0.6933	0.5310	0.6940
	Accuracy	0.5378	0.5117	0.7395	0.5004
	Precision	0.5262	0.5092	0.6780	0.5003
	Recall	0.7586	0.6474	0.9122	0.7906
	F1-Score	0.6214	0.5700	0.7779	0.6128
	Evaluation Time	5.4312	4.8943	5.9395	5.5086
	AUC	0.5378	0.5117	0.7395	0.5004
	Model Number	5	6	7	8
	Learning Rate	0.0010			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	31.6745	31.3598	32.8226	35.5084
	Evaluation Loss	0.6930	0.6945	0.6979	0.6944
	Accuracy	0.5240	0.5065	0.5025	0.5033
	Precision	0.5170	0.5046	0.5052	0.5022
	Recall	0.7307	0.7125	0.2467	0.7561
	F1-Score	0.6056	0.5908	0.3315	0.6035
	Evaluation Time	4.8985	4.6352	5.6801	5.5901
	AUC	0.5240	0.5065	0.5025	0.5033
	Model Number	9	10	11	12
	Learning Rate	0.0100			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	30.3784	30.8910	42.7418	35.4190
	Evaluation Loss	0.7138	0.6939	0.7173	0.6933
	Accuracy	0.5035	0.5064	0.5034	0.5030
	Precision	0.5018	0.5041	0.5411	0.5080
	Recall	0.9929	0.7831	0.0442	0.1914
	F1-Score	0.6666	0.6134	0.0818	0.2781
	Evaluation Time	4.9226	4.8438	5.4607	5.4277
	AUC	0.5035	0.5064	0.5034	0.5030
	Model Number	17	18	19	20
	Learning Rate	0.0010			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	87.6173	41.6119	97.0011	40.2860
	Evaluation Loss	0.4625	0.6924	0.4369	0.6927
	Accuracy	0.7812	0.5157	0.8028	0.5022
	Precision	0.7536	0.5093	0.8925	0.5018
	Recall	0.8355	0.8582	0.6884	0.6025
	F1-Score	0.7925	0.6393	0.7773	0.5475
	Evaluation Time	6.1801	6.0982	6.1535	6.2876
	AUC	0.7812	0.5157	0.8028	0.5022
	Model Number	21	22	23	24
	Learning Rate	0.0100			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	52.3388	40.0743	65.7028	41.3878
	Evaluation Loss	0.4180	0.6930	0.4482	0.6925
	Accuracy	0.8392	0.5036	0.8325	0.5160
	Precision	0.8352	0.5042	0.8220	0.5261
	Recall	0.8452	0.4294	0.8487	0.3233
	F1-Score	0.8402	0.4632	0.8352	0.4005
	Evaluation Time	6.1495	6.1394	6.2596	6.1784
	AUC	0.8392	0.5036	0.8325	0.5160
	Model Number	29	30	31	32
	Learning Rate	0.0010			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	78.2865	36.0576	85.0059	36.6316
	Evaluation Loss	0.3598	0.6919	0.5471	0.6935
	Accuracy	0.8374	0.5181	0.7680	0.5048
	Precision	0.8963	0.5129	0.6896	0.5039
	Recall	0.7630	0.7222	0.9750	0.6123
	F1-Score	0.8243	0.5998	0.8078	0.5529
	Evaluation Time	5.5239	5.3710	6.0510	6.0228
	AUC	0.8374	0.5181	0.7680	0.5048
	Model Number	33	34	35	36
	Learning Rate	0.0100			
	Hidden Layer Size	128.0000		256.0000	
	Optimizer	Adam	SGD	Adam	SGD
	Training Time	51.1338	35.2797	47.3459	35.2865
	Evaluation Loss	0.4754	0.6934	0.4940	0.6924
	Accuracy	0.8414	0.5102	0.8378	0.5162
	Precision	0.8271	0.5064	0.8585	0.5120
	Recall	0.8632	0.7986	0.8088	0.6895
	F1-Score	0.8448	0.6198	0.8329	0.5877
	Evaluation Time	5.4068	5.9534	6.3765	5.8607
	AUC	0.8414	0.5102	0.8378	0.5162
	Mean			Std. Dev	
	Learning Rate				
	Hidden Layer Size				
	Optimizer				
	Training Time (seconds)	33.5024		3.5322	
	Evaluation Loss	0.6975		0.0087	
	Accuracy	0.5076		0.0083	
	Precision	0.5154		0.0201	
	Recall	0.5052		0.3301	
	F1-Score	0.4498		0.1918	
	Evaluation Time (seconds)	5.2965		0.4319	
	AUC	0.5076		0.0084	
	Model Number	60.8590	24.3967		
	Learning Rate				
	Hidden Layer Size				
	Optimizer				
	Training Time	0.5766		0.1239	
	Evaluation Loss	0.6515		0.1530	
	Accuracy	0.6583		0.1574	
	Precision	0.6682		0.2689	
	Recall	0.6336		0.2170	
	F1-Score	6.1731		0.0951	
	Evaluation Time	0.6515		0.1530	
	AUC				
	Model Number	48.7168	20.7367		
	Learning Rate				
	Hidden Layer Size				
	Optimizer				
	Training Time	0.6045		0.1174	
	Evaluation Loss	0.6353		0.1527	
	Accuracy	0.6267		0.1563	
	Precision	0.7785		0.1052	
	Recall	0.6877		0.1173	
	F1-Score	5.6950		0.4062	
	Evaluation Time	0.6353		0.1527	
	AUC				

Top 3 Models	Model Number	21	33	35
	Learning Rate	0.0100	0.0100	0.0100
	Hidden Layer Size	128.0000	128.0000	256.0000
	Optimizer	Adam	Adam	Adam
	Training Time	43.8937	52.2946	49.5189
	Evaluation Loss	0.4237	0.5665	0.5200
	Accuracy	0.8184	0.8338	0.8296
	Precision	0.8522	0.8803	0.7739
	Recall	0.7705	0.7728	0.9312
	F1-Score	0.8093	0.8230	0.8453
	Evaluation Time	6.1091	5.1704	6.1766
	AUC	0.8184	0.8338	0.8296
	Confusion Matrix	[[10829 1671]]	[[11186 1314]]	[[9100 3400]]
		[2869 9631]]	[2840 9660]]	[860 11640]]

Initial RNN Model	Model Number	0
	Learning Rate	0.001
	Hidden Layer Size	128
	Optimizer	Adam
	Training Time	38.52940941
	Evaluation Loss	0.6929
	Accuracy	0.5236
	Precision	0.5162
	Recall	0.7521
	F1-Score	0.6122
	Evaluation Time	5.608083725
	AUC	0.52356
	Confusion Matrix	[[3688 8812]]
		[3099 9401]]