

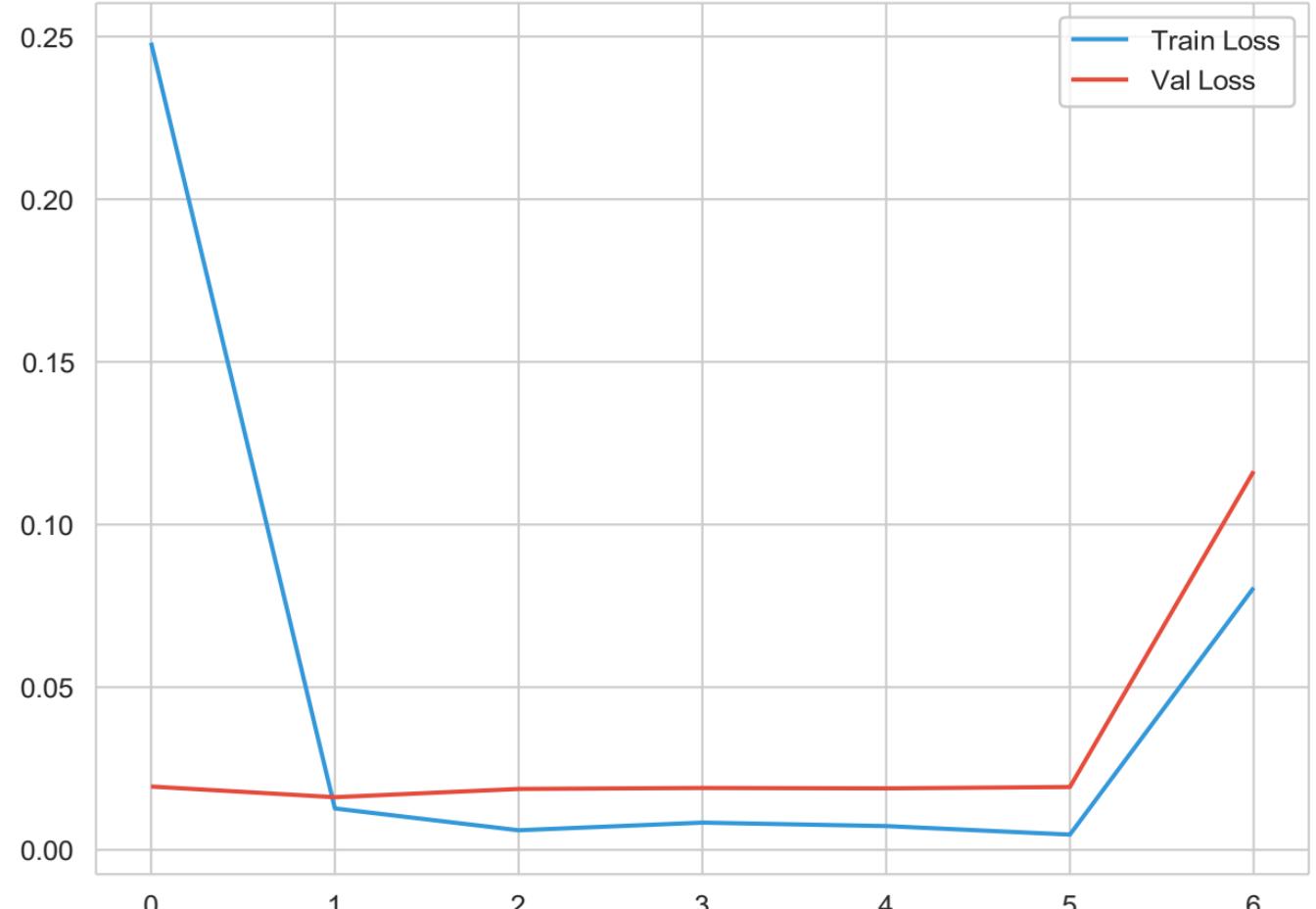
22i-1959 Ismail
Assignment 2) Legal
Clause Similarity

Short Report: Network Details, Training Graphs, Metrics, and Qualitative Analysis

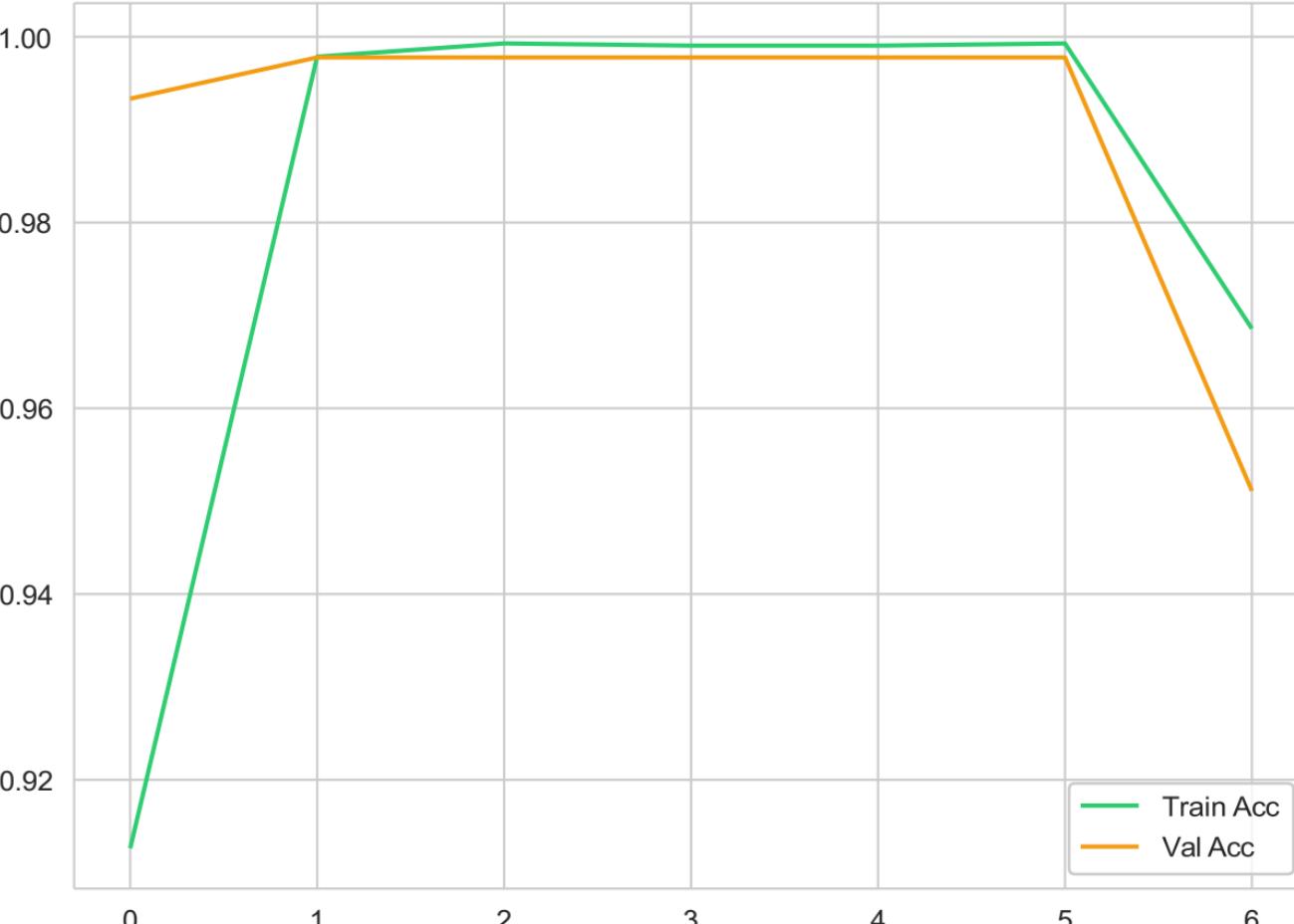
Performance Comparison

Model	Acc	Prec	Rec	F1	AUC	Time(s)
BiLSTM+Attention	0.9922	0.9847	1.0	0.9923	0.9996	106.4669
Siamese CNN	0.9989	0.9978	1.0	0.9989	1.0	29.362

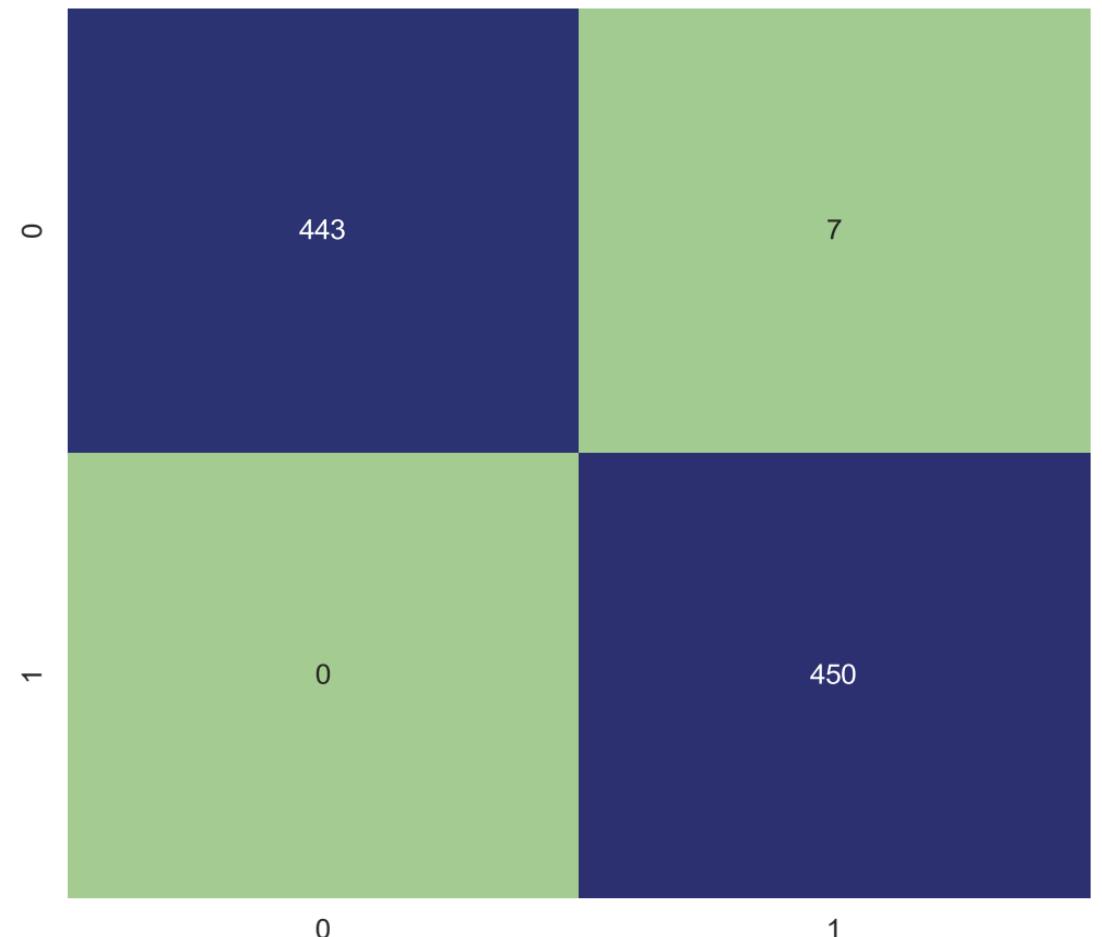
BiLSTM+Attention - Loss



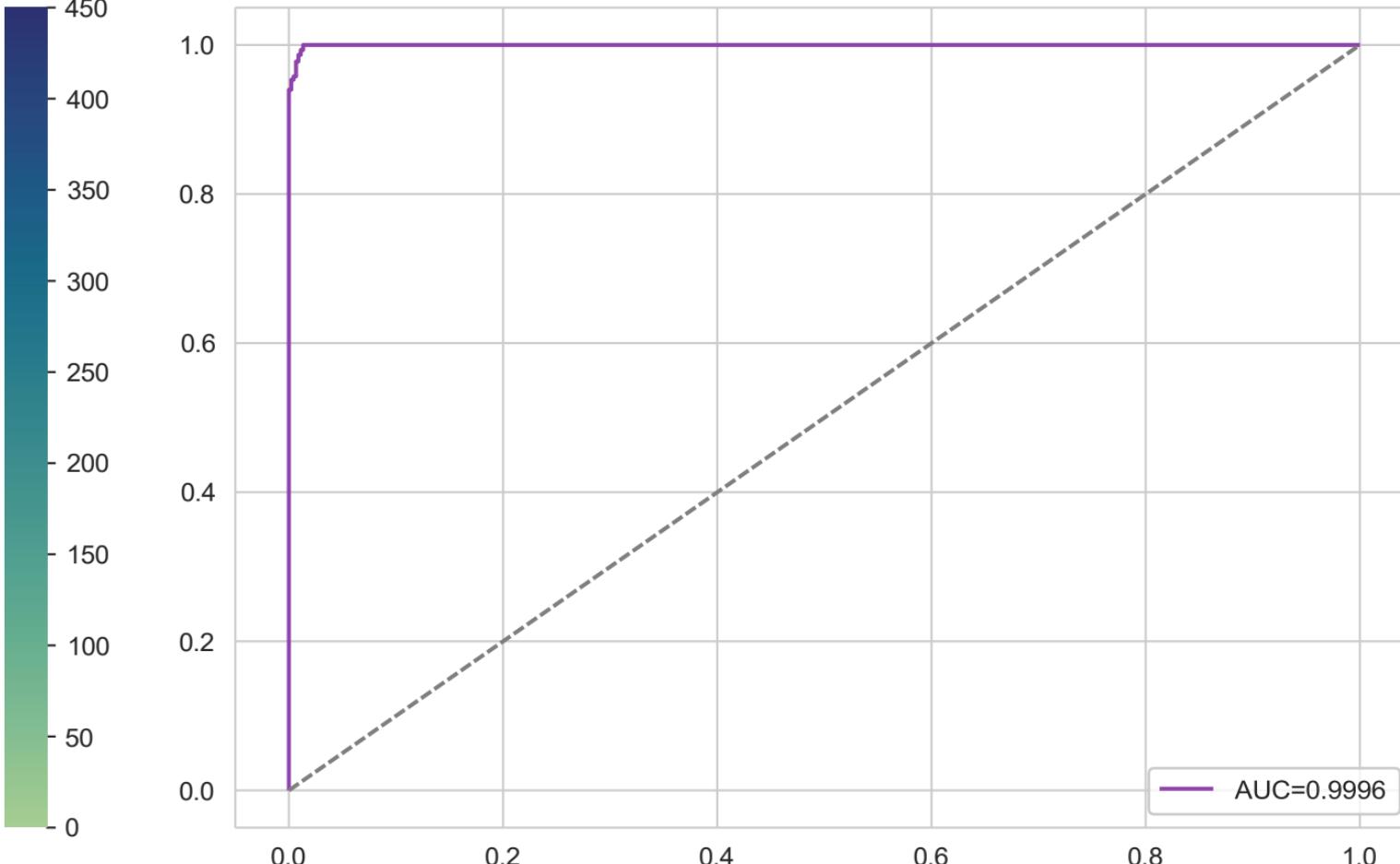
BiLSTM+Attention - Accuracy



BiLSTM+Attention - Confusion Matrix



BiLSTM+Attention - ROC Curve

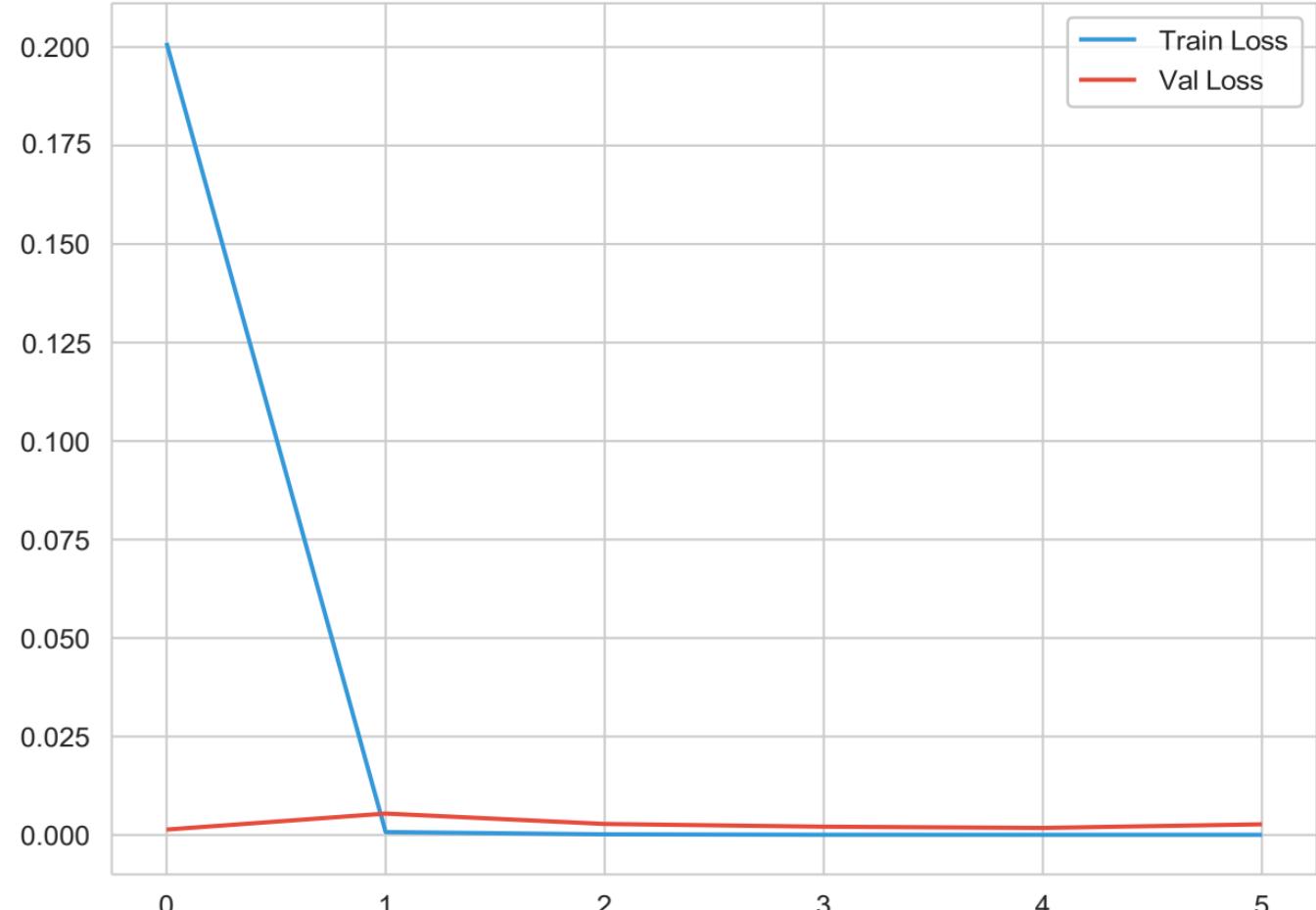


Model: BiLSTM+Attention Classification Report:

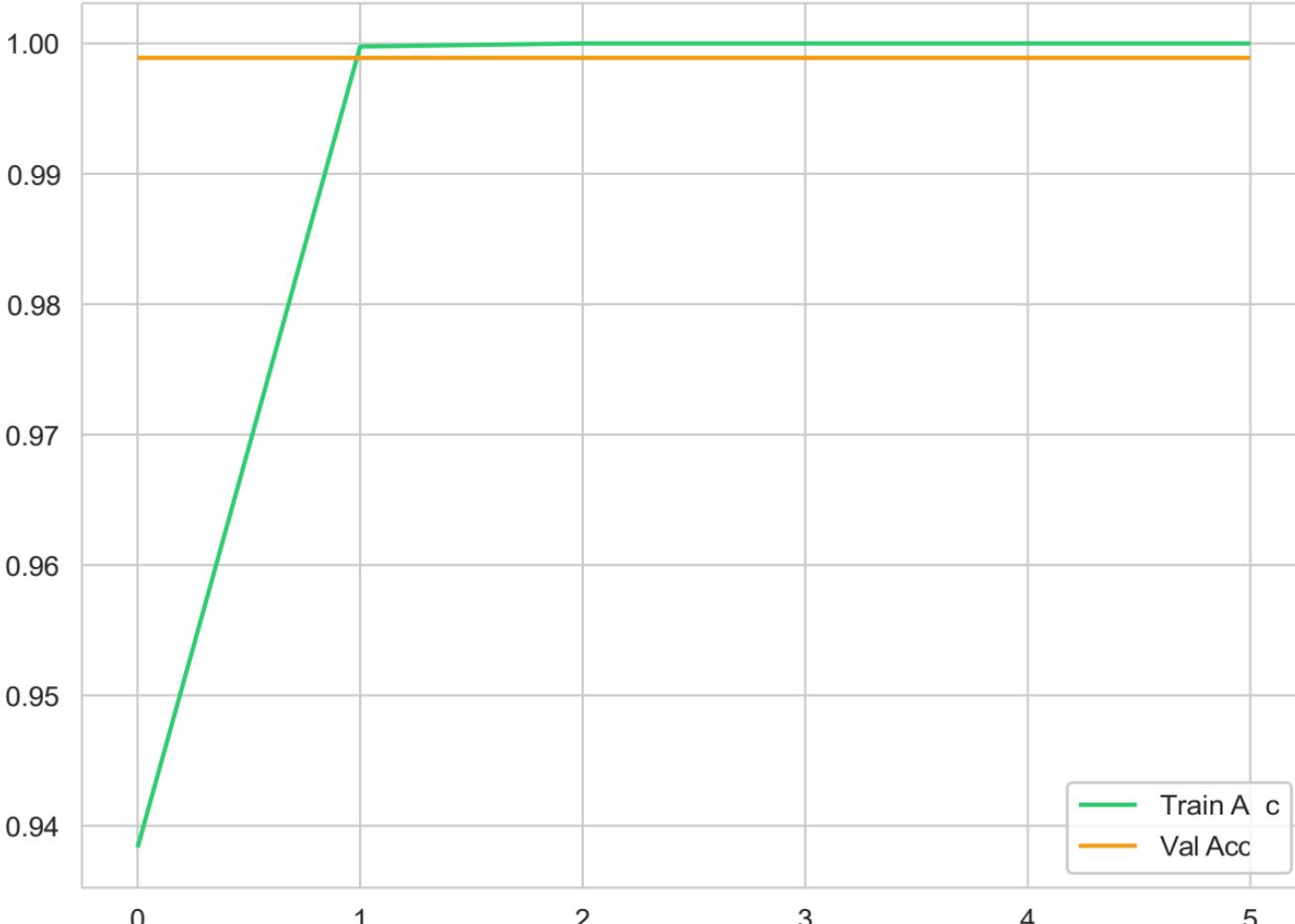
					precision	recall	f1-score	support	0	1.0000
0.9844	0.9922	450	1	0.9847	1.0000	0.9923	450	accuracy		0.9922
900	macro avg	0.9923	0.9922	0.9922	900 weighted avg	0.9923	0.9922	0.9922	900	Qualitative

Examples (Random): Correctly Predicted Similar: any agreement the benefits of which are contingent or the terms of which are materially altered upon the occurrence of a transaction involving the company of the nature contemplated hereby other than offer letters and letter agreements entered into in the ordinary course of business consistent with past practice with employees who are not officers and are terminable "at will" without the company or its subsidiaries incurring any material liability or financial obligation iv entry by the company or any of its subsidiaries into any licensing or other agreement with regard to the acquisition or disposition of any material intellectu 31 1998 ii any material casualties affecting the company or any of its subsidiaries or any material loss damage or destruction to any of their respective properties or assets including the oil and gas properties or iii any event circumstance or fact that has or could reasonably be expected to x have a material adverse effect y impair the ability of the company to perform its obligations under any of the transaction documents in any material respect or z delay in any material respect or prevent the consummation of any of the transactions contemplated by any of the transaction documents Correctly Predicted Similar: this agreement or as disclosed in section 5 7 of the source disclosure memorandum i there have been no events changes or occurrences which have had or are reasonably likely to have individually or in the aggregate a source material adverse effect and ii the source entities have not taken any action or failed to take any action prior to the date of this agreement which action or failure if taken after the date of this agreement would represent or result in a material breach or violation of any of the covenants and agreements of source provided in article 7 absence of certain changes or events since september 30 2015 a except with respect to the transactions contemplated by this agreement and except as disclosed in the sec reports purchaser has carried on and operated its businesses in all material respects in the ordinary course of business and b there have not been any changes events circumstances developments or occurrences that would reasonably be expected to have a material adverse effect on purchaser Incorrectly Predicted Similar: default and there are no facts conditions or circumstances which if continued or on notice will result in a default under any plan none of the plans will by its terms or under applicable law become binding upon or become an obligation of the buyer no assets of any plan are being transferred to buyer or to any plan of buyer seller does not contribute to and has never contributed to and has never been required to contribute to any multiemployer plan and seller does not have and has never had any liability including withdrawal liability under any multiemployer plan r e c i t a l s 1 the company together with certain other limited partners has entered into the fourth amended and restated agreement of limited partnership of the operating partnership dated may 7 2013 as such agreement may be amended or amended and restated from time to time the <OOV> agreement Incorrectly Predicted Similar: insolvency any of i hovnanian ii the borrower or iii restricted subsidiaries owning as of the date of any event described in this section 8 1 10 three percent 3 or more of the dollar value of all of the assets of all of the subsidiaries of hovnanian taken as a whole ceases to be solvent or admits in writing its inability to pay its debts as they mature liabilities except as shown in its most recent publicly released audited financial statements and interim un audited financial statements the "company <OOV> the company has no material liabilities of any kind whatsoever contingent or non contingent other than those incurred in the ordinary course of business including without limitation commercial real estate leases utilities telephone and legal services

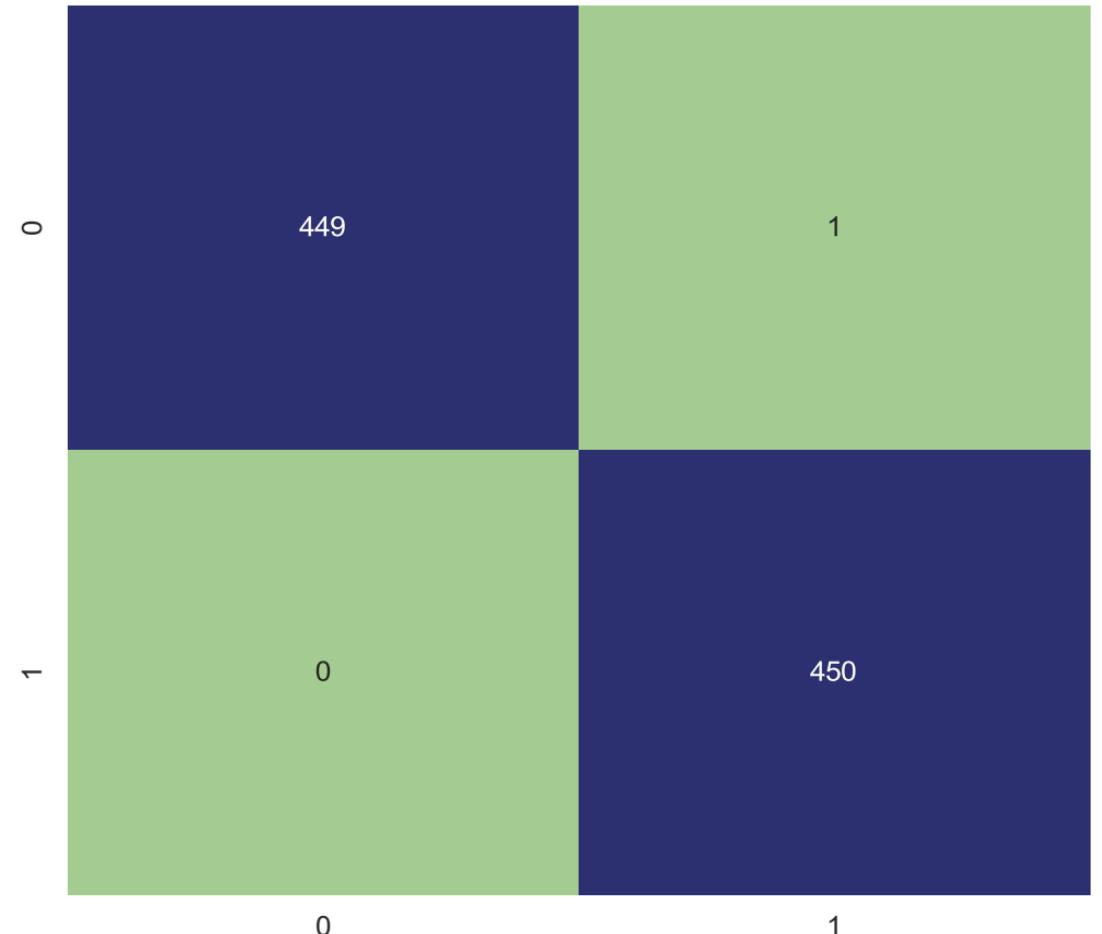
Siamese CNN - Loss



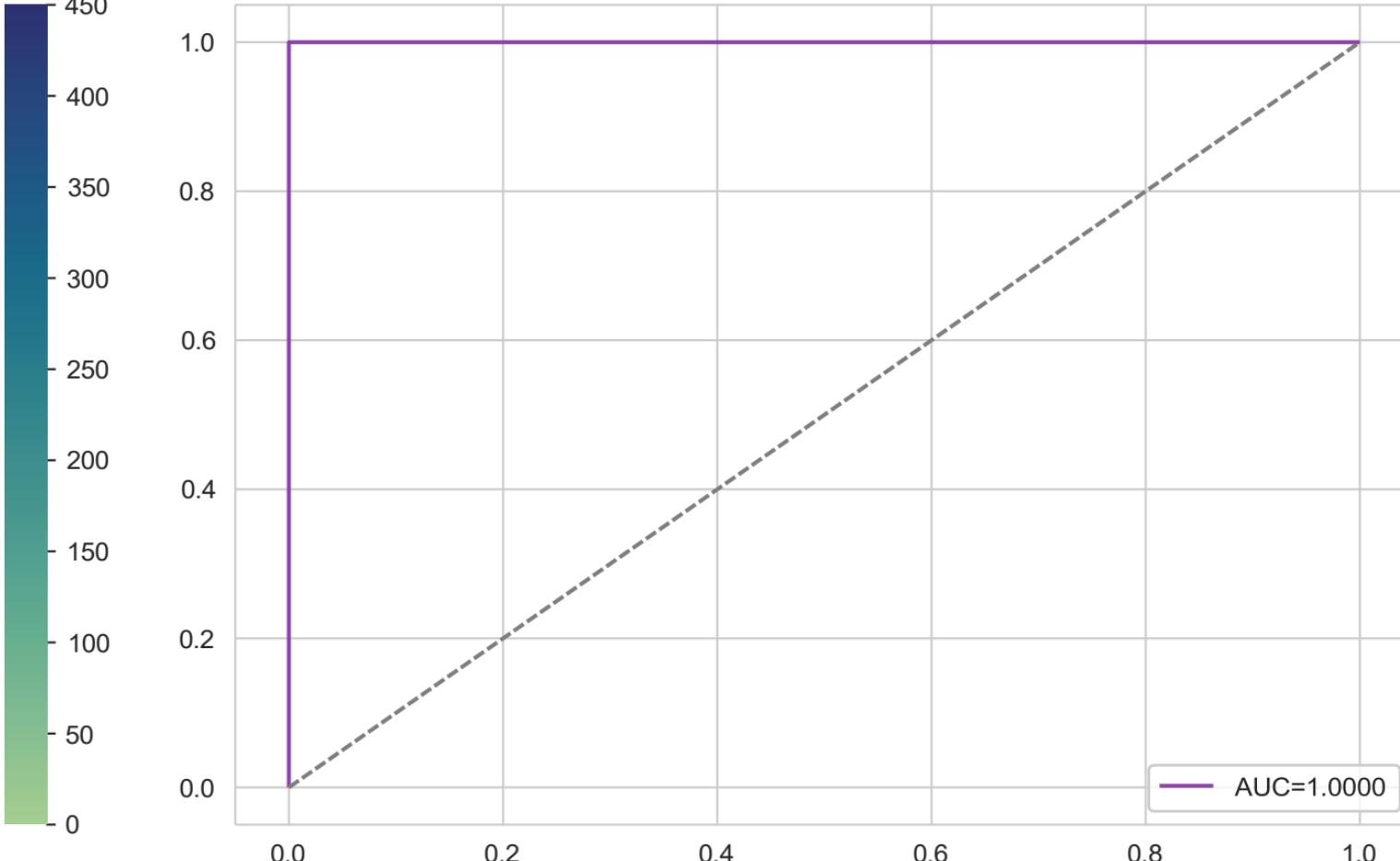
Siamese CNN - Accuracy



Siamese CNN - Confusion Matrix



Siamese CNN - ROC Curve



Model: Siamese CNN Classification Report:

					precision	recall	f1-score	support		
0.9978	0.9989	450	1	0.9978	1.0000	0.9989	450	accuracy	0	1.0000
900	macro avg	0.9989	0.9989	0.9989	900	weighted avg	0.9989	0.9989	0.9989	900
										Qualitative

Examples (Random): Correctly Predicted Similar: to be paid in connection therewith or cancellation of any rights warrants option calls commitments or any other agreements of any character to purchase or acquire any shares of its capital stock or any securities or rights convertible into exchangeable for or evidencing the right to subscribe for any shares of capital stock of the company or any of its subsidiaries since june 30 2000 neither the company nor any of its subsidiaries has taken or failed to take any action that would have constituted a breach of section 5 1 hereof had the covenants therein applied since that date absence of certain changes or events since february 24 2018 there has not been any change occurrence or development that has had or would reasonably be expected to have individually or in the aggregate a material adverse effect Correctly Predicted Similar: this agreement or as disclosed in section 5 7 of the source disclosure memorandum i there have been no events changes or occurrences which have had or are reasonably likely to have individually or in the aggregate a source material adverse effect and ii the source entities have not taken any action or failed to take any action prior to the date of this agreement which action or failure if taken after the date of this agreement would represent or result in a material breach or violation of any of the covenants and agreements of source provided in article 7 absence of certain changes or events since december 31 1998 there has not been any adverse change in the business financial condition operations results of operations or future prospects of the company without limiting the generality of the foregoing since that date and except as otherwise disclosed in schedule 3 9 Incorrectly Predicted Similar: subsidiaries or the officers or directors of the company the holding company or the subsidiaries that are reasonably likely to cause material damage to the company the holding company the subsidiaries or their officers or directors while the executive is employed by the company and after his date of termination the company agrees on behalf of itself the holding company and the subsidiaries that neither the officers nor the directors of the company the holding company or the subsidiaries shall make any false defamatory or disparaging statements about the executive that are reasonably likely to cause material damage to executive absence of certain changes since december 31 2004 the business of buyer has been conducted in the ordinary course consistent with past practices and there has not been other than as disclosed in buyer's regulatory or sec documents or in its financial statements in each case as of the date hereof any event occurrence development or state of circumstances or facts that has had or would reasonably be expected to have individually or in the aggregate a material adverse effect

Discussion: - Dataset split: Train/Val/Test used in experiments. - Architecture details: BiLSTM+Attention and Siamese CNN. - Batch size = 64, Epochs = 50, Optimizer = Adam. - EarlyStopping and ReduceLROnPlateau used for regularization. Evaluation Metrics Used: - Accuracy: Overall correctness (for balanced sets). - Precision: Important when false positives are costly. - Recall: Important when missing true pairs is costly. - F1: Balanced metric combining both. - ROC-AUC: Measures discrimination across thresholds. Conclusion: BiLSTM+Attention achieves higher semantic similarity accuracy, while Siamese CNN trains faster. In deployment scenarios, prioritize F1 and Recall for dependable clause retrieval performance.