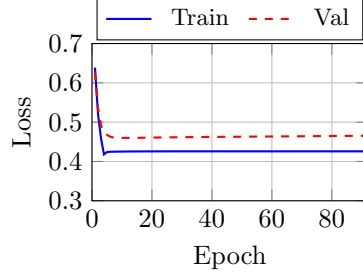


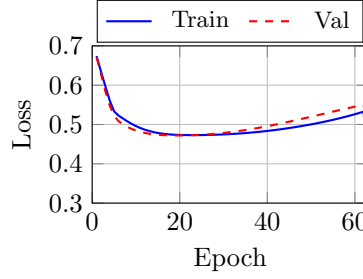
Appendix

Additional Material: Training Loss Curves

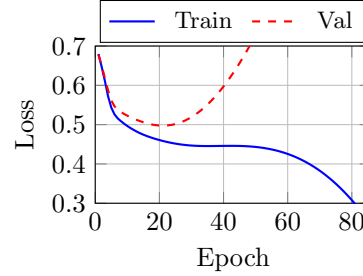
In this appendix, we report the complete training loss trends for all evaluated models across the different experimental settings. These figures complement the quantitative results presented in Section 4, offering insight into convergence stability and generalization behavior.



(a) ComplEx model.

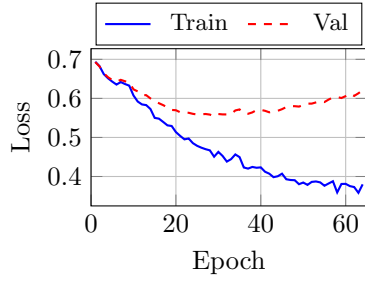


(b) CP model.

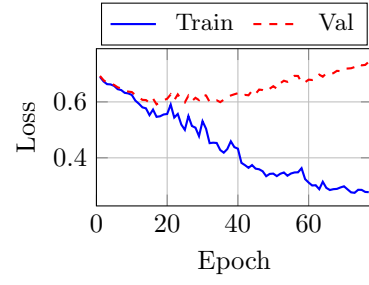


(c) DistMult model.

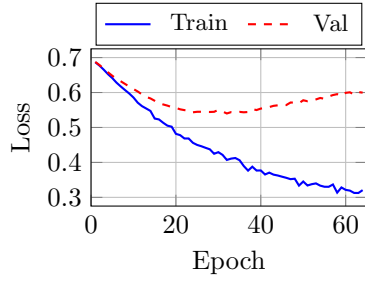
Fig. 1: Training and validation loss curves for inductive KGE models (ComplEx, CP, and DistMult) on the Patients–Diseases dataset using AdaGrad optimizer.



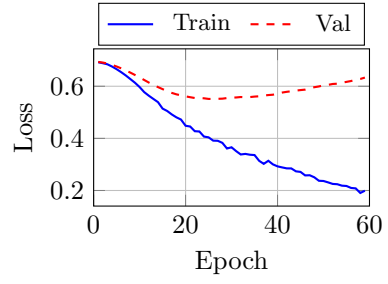
(a) GAT model.



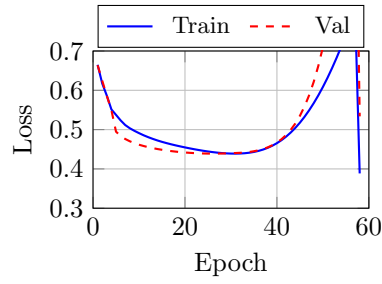
(b) GIN model.



(c) GCN model.

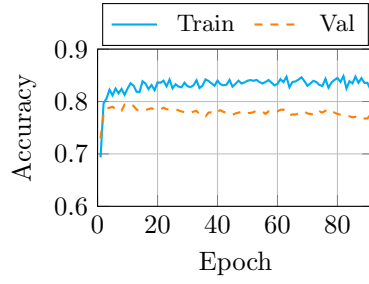


(d) SAGE model.

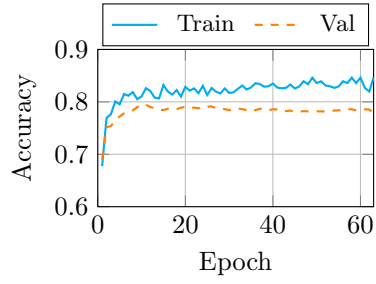


(e) ConvE model.

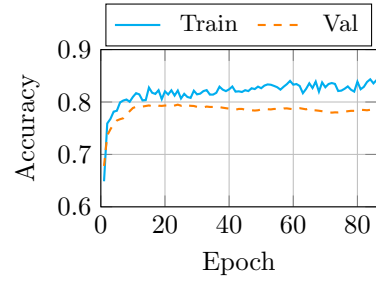
Fig. 2: Training and validation loss curves for inductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Drug.Disease dataset using Adam optimizer.



(a) ComplEx model.

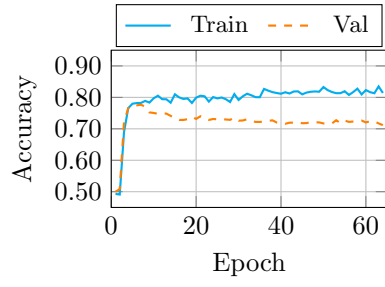


(b) CP model.

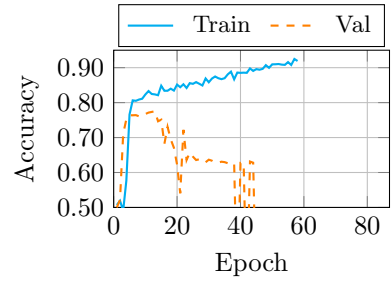


(c) DistMult model.

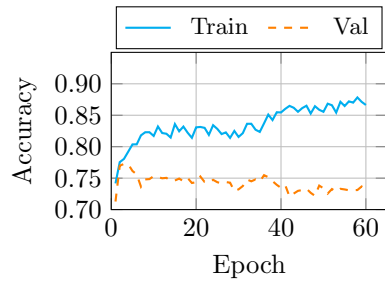
Fig. 3: Training and validation accuracy curves for inductive KGE models (ComplEx, CP, and DistMult) on the Patients–Diseases dataset using AdaGrad optimizer.



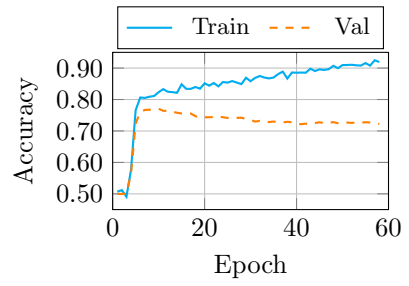
(a) GAT model.



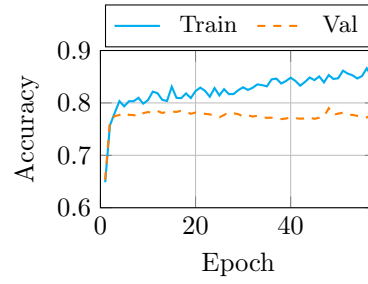
(b) GIN model.



(c) GCN model.

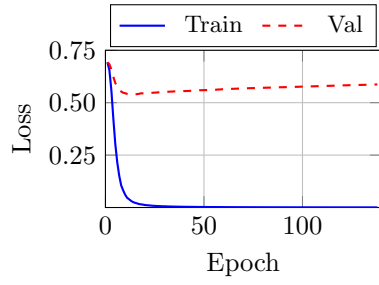


(d) SAGE model.

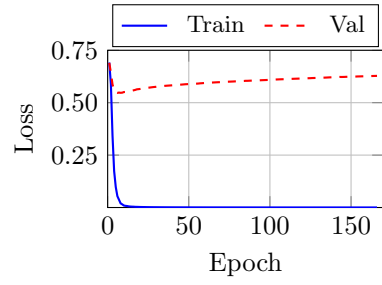


(e) ConvE model.

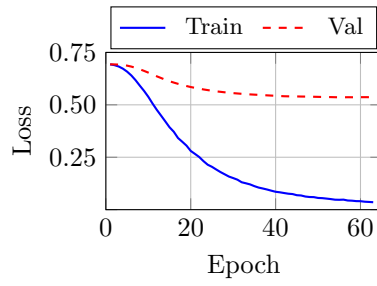
Fig. 4: Training and validation accuracy curves for inductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Patient.Disease dataset using Adam optimizer.



(a) ComplEx model.

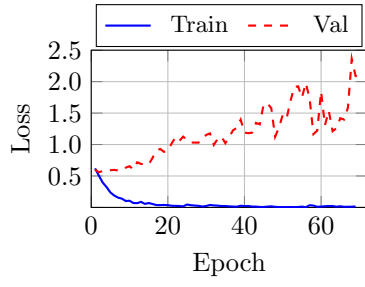


(b) CP model.

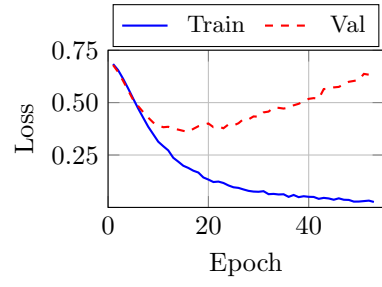


(c) DistMult model.

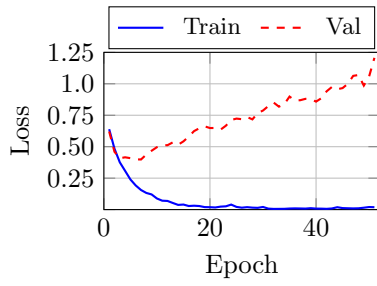
Fig. 5: Training and validation loss curves for transductive models (ComplEx, CP, and DistMult) on the Drug-Target dataset using Adagrad optimizer.



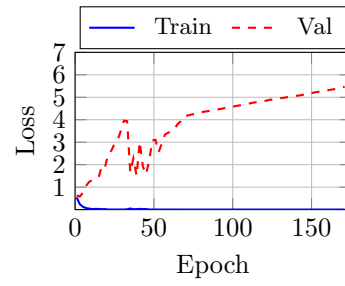
(a) GAT model.



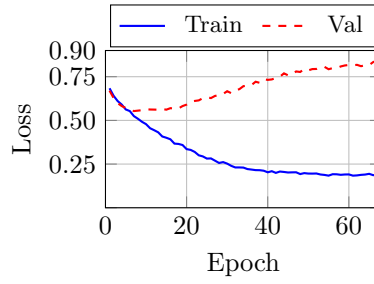
(b) GIN model.



(c) GCN model.

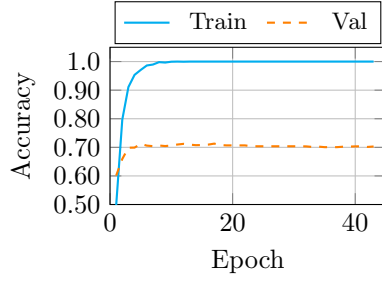


(d) SAGE model.

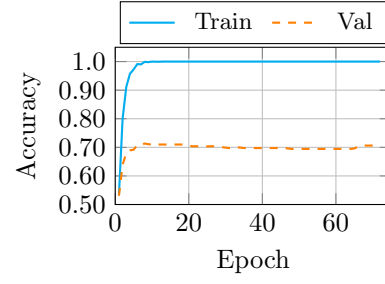


(e) ConvE model.

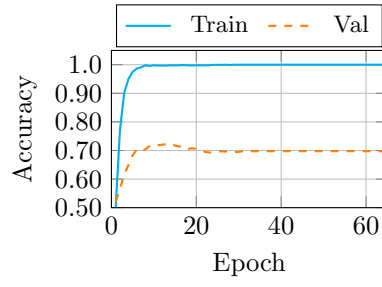
Fig. 6: Training and validation loss curves for transductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Drug-Target dataset using Adam optimizer.



(a) ComplEx model.

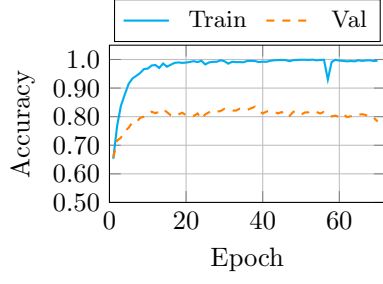


(b) CP model.

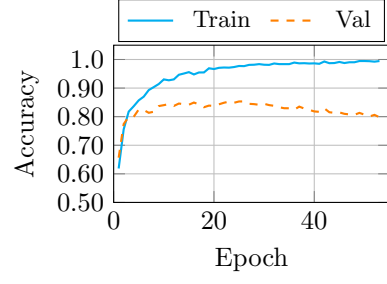


(c) DistMult model.

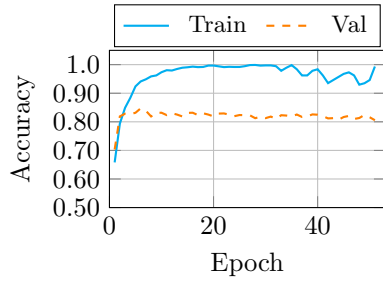
Fig. 7: Training and validation accuracy curves for transductive models (ComplEx, CP, and DistMult) on the Drug_Target dataset using Adagrad optimizer.



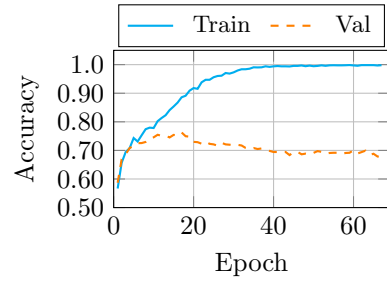
(a) GAT model.



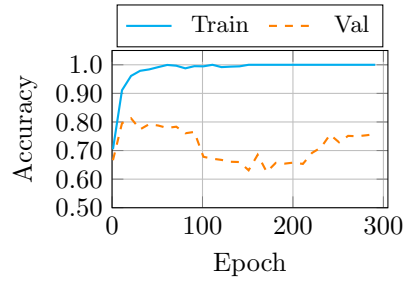
(b) GIN model.



(c) GCN model.

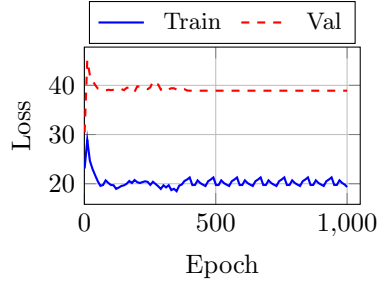


(d) ConvE model.

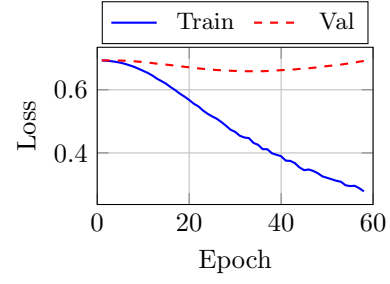


(e) SAGE model.

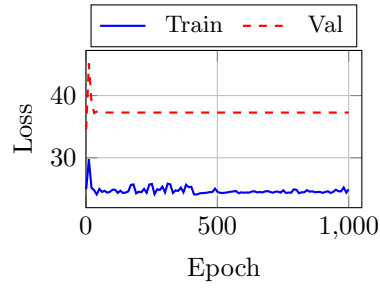
Fig. 8: Training and validation accuracy curves for transductive GNN models (GAT, GIN, GCN, ConvE, and SAGE) on the Drug-Target dataset using Adam optimizer. All data extracted from real files.



(a) ComplEx model.

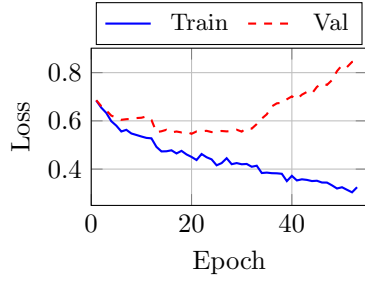


(b) CP model.

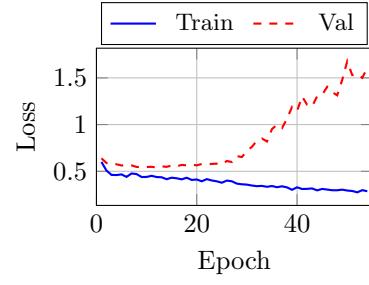


(c) DistMult model.

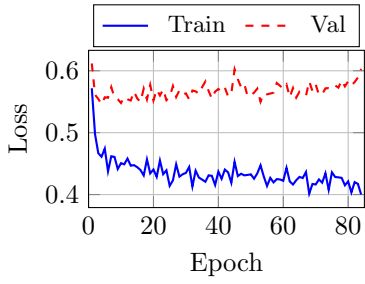
Fig. 9: Training and validation loss curves for transductive models (ComplEx, CP, and DistMult) on the Drug_Disease dataset using Adagrad optimizer.



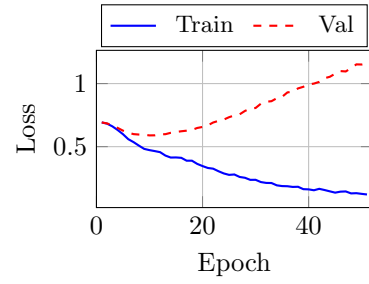
(a) GAT model.



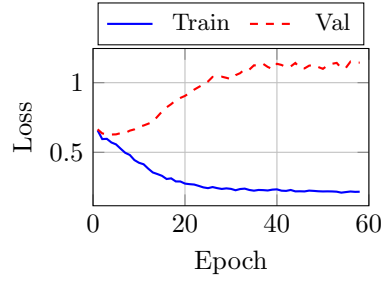
(b) GIN model.



(c) GCN model.

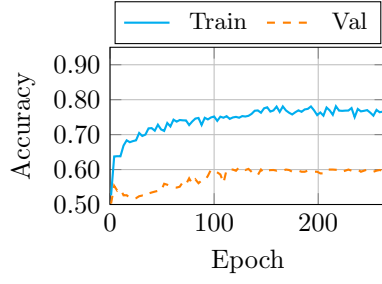


(d) SAGE model.

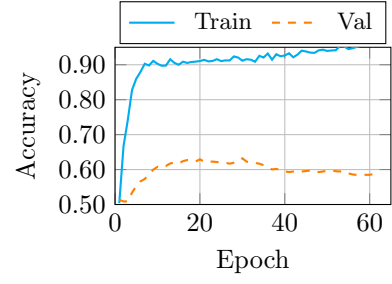


(e) ConvE model.

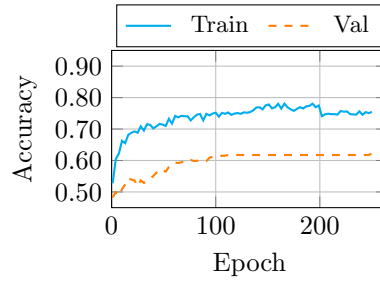
Fig. 10: Training and validation loss curves for transductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Drug_Disease dataset using Adam optimizer.



(a) ComplEx model.

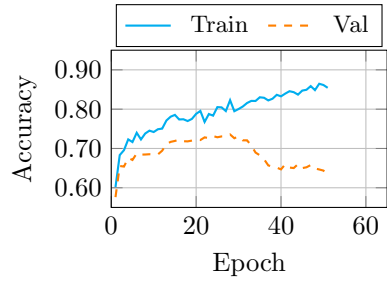


(b) CP model.

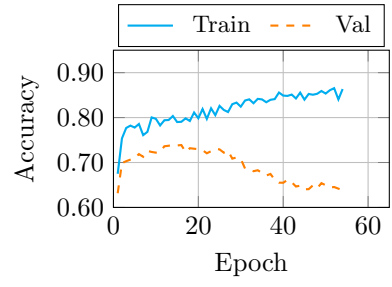


(c) DistMult model.

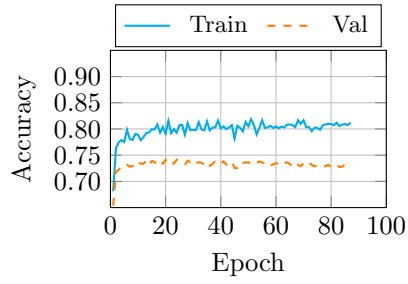
Fig. 11: Training and validation accuracy curves for transductive models (ComplEx, CP, and DistMult) on the Drug_Disease dataset using Adagrad optimizer.



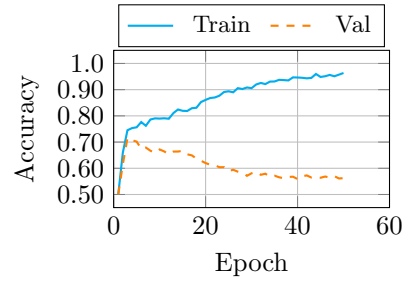
(a) GAT model.



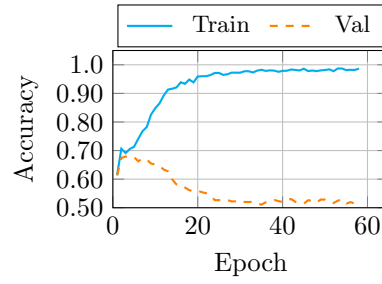
(b) GIN model.



(c) GCN model.

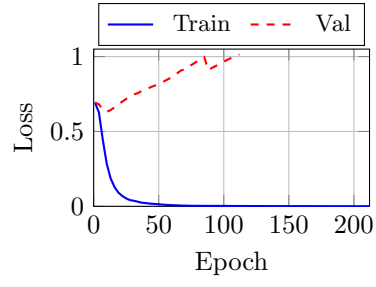


(d) SAGE model.

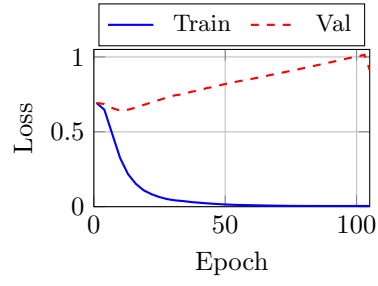


(e) ConvE model.

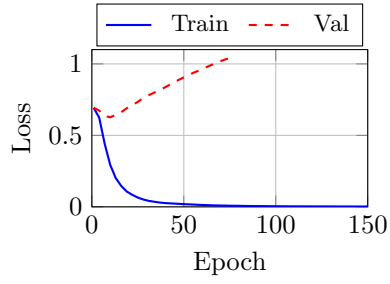
Fig. 12: Training and validation accuracy curves for transductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Drug_Disease dataset using Adam optimizer.



(a) ComplEx model.

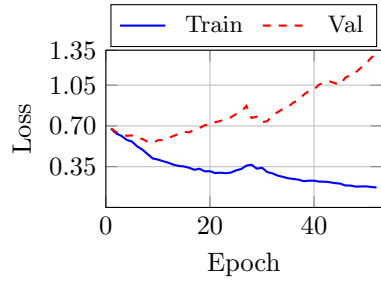


(b) CP model.

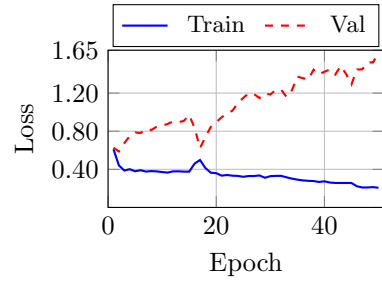


(c) DistMult model.

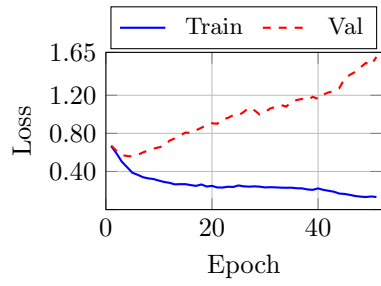
Fig. 13: Updated training and validation loss curves for Patients–Diseases using the new best checkpoints (sampled every 3 epochs).



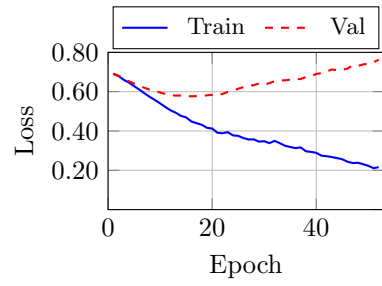
(a) GAT model.



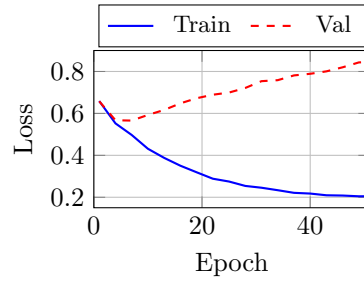
(b) GIN model.



(c) GCN model.

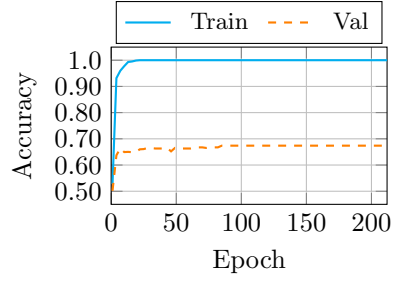


(d) SAGE model.

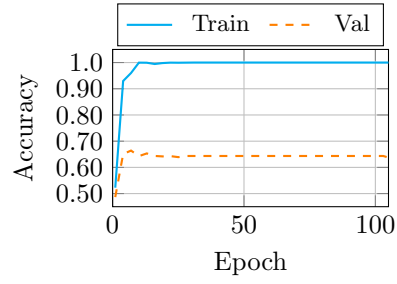


(e) ConvE model.

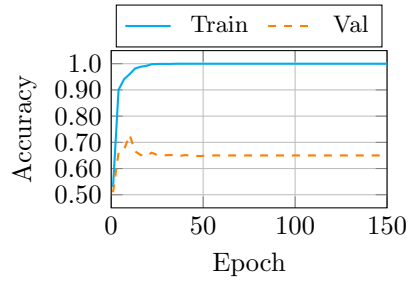
Fig. 14: Training and validation loss curves for inductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Patient_Disease dataset using Adam optimizer.



(a) ComplEx model.

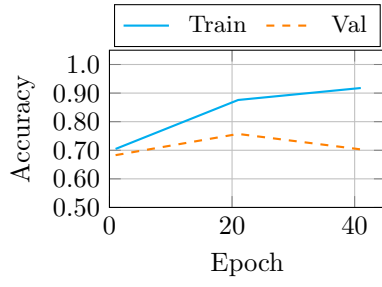


(b) CP model.

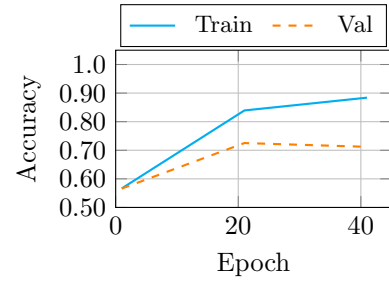


(c) DistMult model.

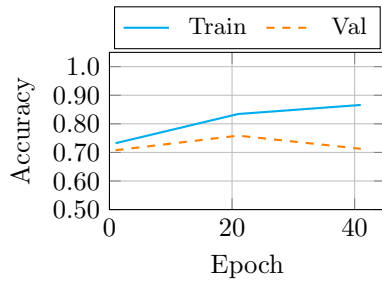
Fig. 15: Updated accuracy curves (Train/Val) from the new checkpoints.



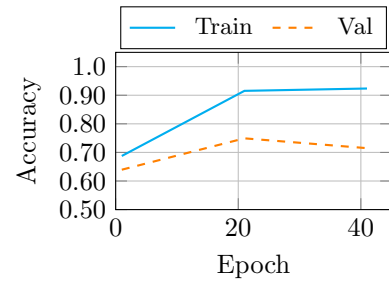
(a) GAT model.



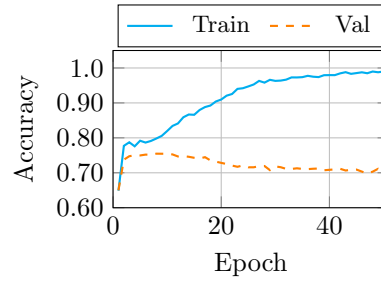
(b) SAGE model.



(c) GIN model.



(d) GCN model.



(e) ConvE model.

Fig. 16: Training and validation accuracy curves for transductive GNN models (GAT, GIN, GCN, SAGE, and ConvE) on the Patient Disease dataset using Adam optimizer.