Experiments

Overall Performance

Weibo

Method	Class	Acc.	Prec.	Rec.	F_1
DTC	F	0.831	0.847	0.815	0.831
	T		0.815	0.824	0.819
SVM-RBF	F	0.879	0.777	0.656	0.708
	T		0.579	0.708	0.615
SVM-TS	F	0.885	0.950	0.932	0.938
	T		0.124	0.047	0.059
RvNN	F	0.908	0.912	0.897	0.905
	T		0.904	0.918	0.911
PPC_RNN+CNN	F	0.916	0.884	0.957	0.919
	T		0.955	0.876	0.913
Bi-GCN	F	**0.961**	**0.961**	**0.964**	**0.961**
	T		**0.962**	**0.962**	**0.960**

Twitter15

Method	Acc.	N	F	T	U
		F_1	F_1	F_1	F_1
DTC	0.454	0.415	0.355	0.733	0.317
SVM-RBF	0.318	0.225	0.082	0.455	0.218
SVM-TS	0.544	0.796	0.472	0.404	0.483
SVM-TK	0.750	0.804	0.698	0.765	0.733
RvNN	0.723	0.682	0.758	0.821	0.654
PPC_RNN+CNN	0.477	0.359	0.507	0.300	0.640
Bi-GCN	**0.886**	**0.891**	**0.860**	**0.930**	**0.864**

Twitter16

Method	Acc.	N	F	T	U
		F_1	F_1	F_1	F_1
DTC	0.473	0.254	0.080	0.190	0.482
SVM-RBF	0.553	0.670	0.085	0.117	0.361
SVM-TS	0.574	0.755	0.420	0.571	0.526
SVM-TK	0.732	0.740	0.709	0.836	0.686
RvNN	0.737	0.662	0.743	0.835	0.708
PPC_RNN+CNN	0.564	0.591	0.543	0.394	0.674
Bi-GCN	**0.880**	**0.847**	**0.869**	**0.937**	**0.865**

- Bi-GCN is significantly superior to the RvNN method, RvNN only uses the hidden feature vector of all the leaf nodes so that it's heavily impacted by information of the latest post (lack of information such as comments, and just follow the former posts).
- Root feature enhancement of Bi-GCN to pay attention to the information of the source posts.

Experiments

Ablation Study

- All variants outperform without root feature enhancement.
- Indicates that the source posts plays an important role in rumor detection.
- TD-GCN and BU-GCN can't always achieve better results that UD-GCN, but Bi-GCN is always superior to them.
- Implies the importance to simultaneously consider both top-down and bottom-up representations.