

Multi-modal Identification of State-Sponsored Propaganda on Social Media

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Background and Aim

Propaganda

- Purpose
- Veracity
- Parties

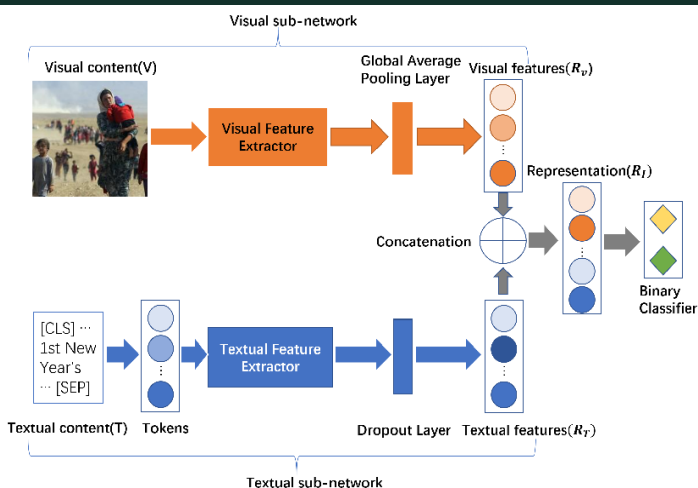
Social Media

- Anonymity
- Astroturfing

Our Model

- Early Detection
 - Limit influence
- Content-based
 - User independent
- Veracity-agnostic
 - Fake news or not

Our Model



Dataset

Organization	Data Type	# of tweets
IRA	Training	4,102
	Validation	642
	Test	896
Russian	Training	5,194
	Validation	742
	Test	1,534
Iranian	Training	6,544
	Validation	5,452
	Test	300
	Delay Test	1,620
	Delay Test	6,642

Features



Fig: Original

Fig: Structure

Text Type	Textual Content
Original	#Putin's 1st New Year's in #Syria URL
Tag	TAG 1st New Year's in TAG URL
Miss	1st New Year's in URL
Structure	T W W W T U

Results

	Continuous	Delay
Resnet-50	0.714	0.644
Inception-v3	0.706	0.639
VGG-19	0.681	0.497
Style	0.477	0.424
Content	0.684	0.519
Texture-Content	0.664	0.510
Structure	0.604	0.446

Table: F1 score with visual features

	Continuous	Delay
Original	0.854	0.643
Tag	0.803	0.649
Miss	0.788	0.614
Structure	0.715	0.548

Table: F1 score with textual features

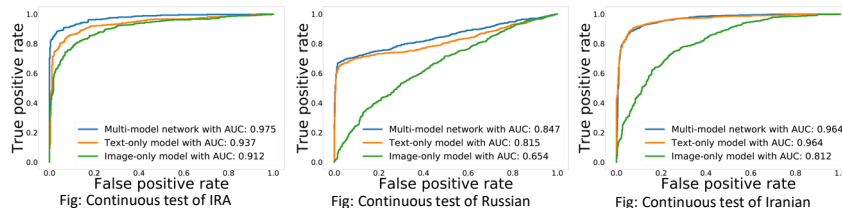


Fig: Continuous test of IRA

Fig: Continuous test of Russian

Fig: Continuous test of Iranian

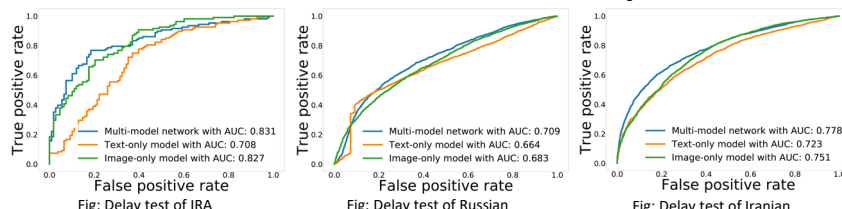


Fig: Delay test of IRA

Fig: Delay test of Russian

Fig: Delay test of Iranian



Fig: True positive



Fig: True negative



Fig: False positive



Fig: False Negative