Methodology

Model Integration and Joint Learning

- When detecting fake new, we aim to correctly recognize fake news stories whose falsity is in their textual and/or visual information, or their relationship.
- Final loss function as
  - $L(\theta_t, \theta_v, \theta_p) = \alpha L_p(\theta_t, \theta_v, \theta_p) + \beta L_s(\theta_t, \theta_v)$
    - $L_p(\theta_t, \theta_v, \theta_p) = -\mathbb{E}_{(a,y)\sim(A,Y)}(y \log M_p(t, v) + (1 - y)\log(1 - M_p(t, v)))$
    - $L_S(\theta_t, \theta_v) = -\mathbb{E}_{(a,y)\sim(A,Y)}(y \log(1 - M_s(t, v)) + (1 - y)\log M_s(t, v))$

Experiments

Setup: Dataset

	PolitiFact			GossipCop		
	Fake	True	Overall	Fake	True	Overall
# News articles	432	624	1,056	5,323	16,817	22,140
– with textual information	420	528	948	4,947	16,694	21,641
– with visual information	336	447	783	1,650	16,767	18,417

https://github.com/KaiDMML/FakeNewsNet

- Experiments are conducted on two well-established public benchmark datasets of fake news detection.
- PolitiFact (politifact.com) (2002.05 ~ 2018.07)
  - non-profit fact-checking website of political statements and reports in the U.S.
- GossipCop (gossipcop.com) (2000.07 ~ 2018.12)
  - fact-checks celebrity reports and entertainment stories published in magazines and newspapers.