Experiments....

Evaluation questions

- To evaluate the effectiveness, aim to answer the following evaluation questions:
  - **EQ1:** Is MVNN able to improve the performance of fake news detection based on visual modality?
  - **EQ2:** How effective are different domains and other network components: attention, Bi-GRU and branches in the pixel domain sub-network, in improving the performance of MVNN?
  - **EQ3:** Can MVNN help improve the performance of multi-modal fake news detection?

Experiments.....

Ablation Study

Method	Accuracy	Precision	Recall	F1
FF+LR	0.650	0.612	0.579	0.595
Pre-trained VGG	0.721	0.669	0.738	0.702
Fine-tuned VGG	0.754	0.74	0.689	0.714
ConvAE	0.734	0.685	0.744	0.713
MVNN	**0.846**	**0.809**	**0.857**	**0.832**

- **EQ1:** Is MVNN able to improve the performance of fake news detection based on visual modality?
- 1) MVNN is best, validates MVNN can effectively capture the intrinsic characteristics of fake-news images, achieves an accuracy of 84.6%, outperforming existing approaches by 9.2%
- 2) Fine-tuned VGG better than Pre-trained VGG, show that the learned features are more relevant to the task of fake news detection after fine-tuning the model on the fake news dataset.