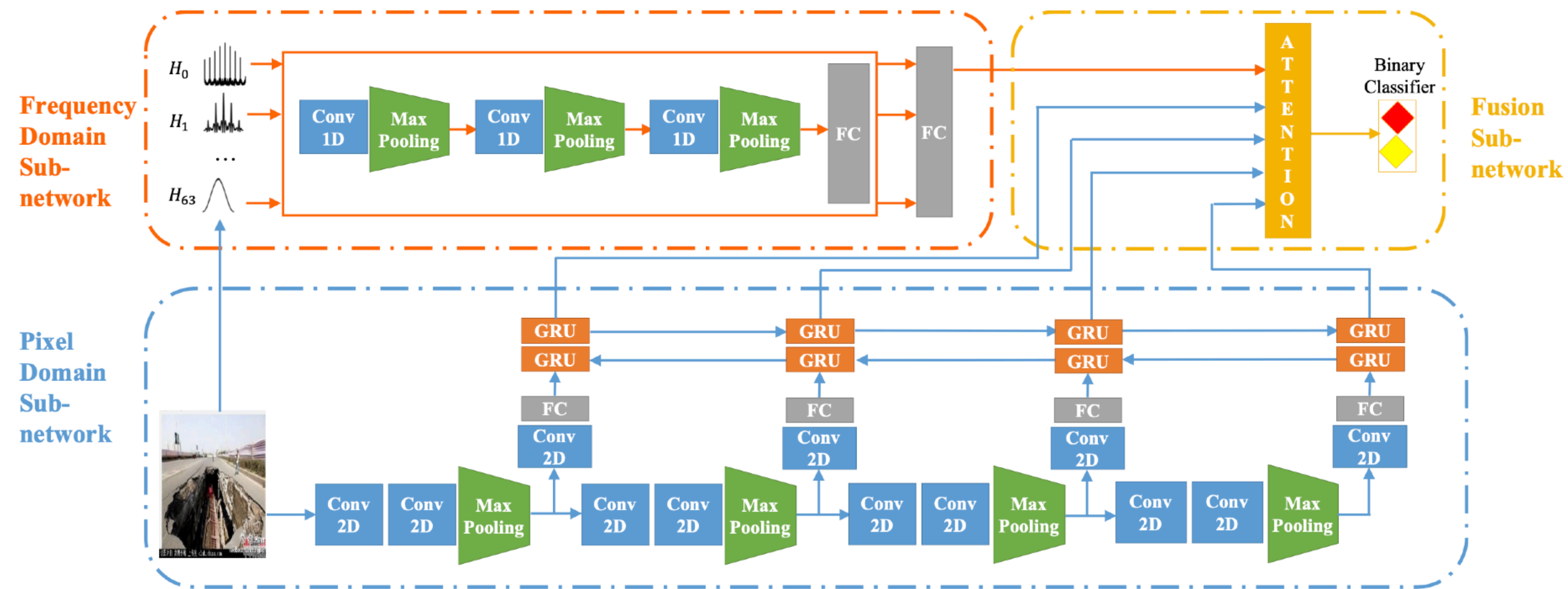# Experiments......
Ablation Study

- **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?

- To illustrate the effectiveness of different domains and other network components by removing certain components:

  - w/o frequency domain

  - w/o pixel domain

  - w/o attention

  - w/o Bi-GRU

  - w/o branches

Experiments......
Ablation Study Observations

Method	Accuracy	Precision	Recall	F1
MVNN	**0.846**	**0.809**	**0.857**	**0.832**
w/o frequency domain	0.794	0.792	0.728	0.758
w/o pixel domain	0.737	0.698	0.717	0.708
w/o attention	0.827	0.778	0.853	0.814
w/o Bi-GRU	0.828	0.772	0.841	0.805
w/o branches	0.803	0.752	0.830	0.789

- **Multiple domains:** The frequency and pixel domain both are important, the accuracy drops by 5.2% and 10.9% without the frequency and pixel domain sub-network. <u>Pixel domain plays a major role and the frequency domain is auxiliary</u>.

- **Network Components:**

  - remove attention the accuracy is drops by 1.9%, which means that the attention mechanism better than simply concatenating

  - remove the Bi-GRU reduces 1.8%; remove the branches drops by 4.3%.

- Incorporating different levels of features and considering the dependencies between these features both help capture the semantic characteristics of visual contents