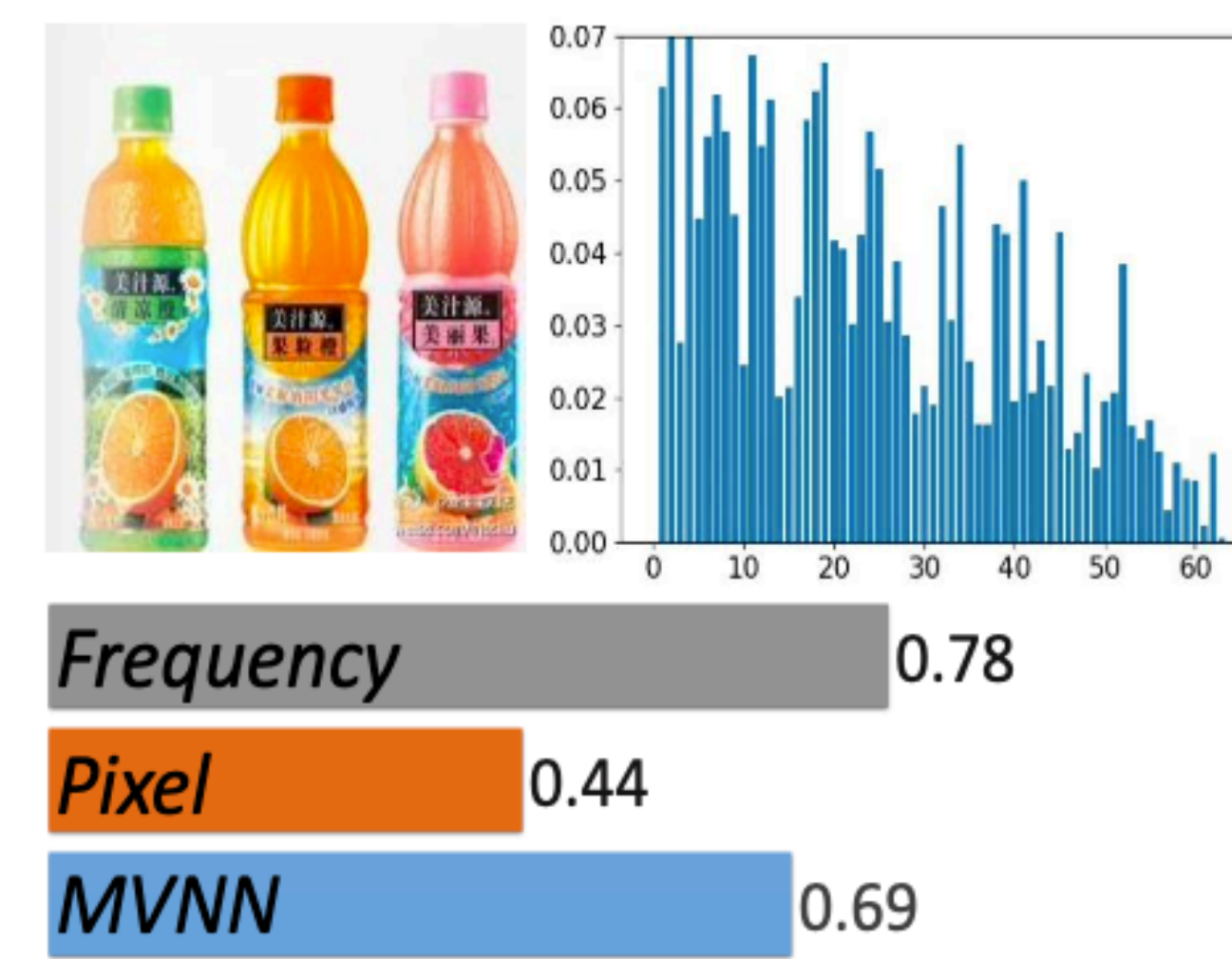
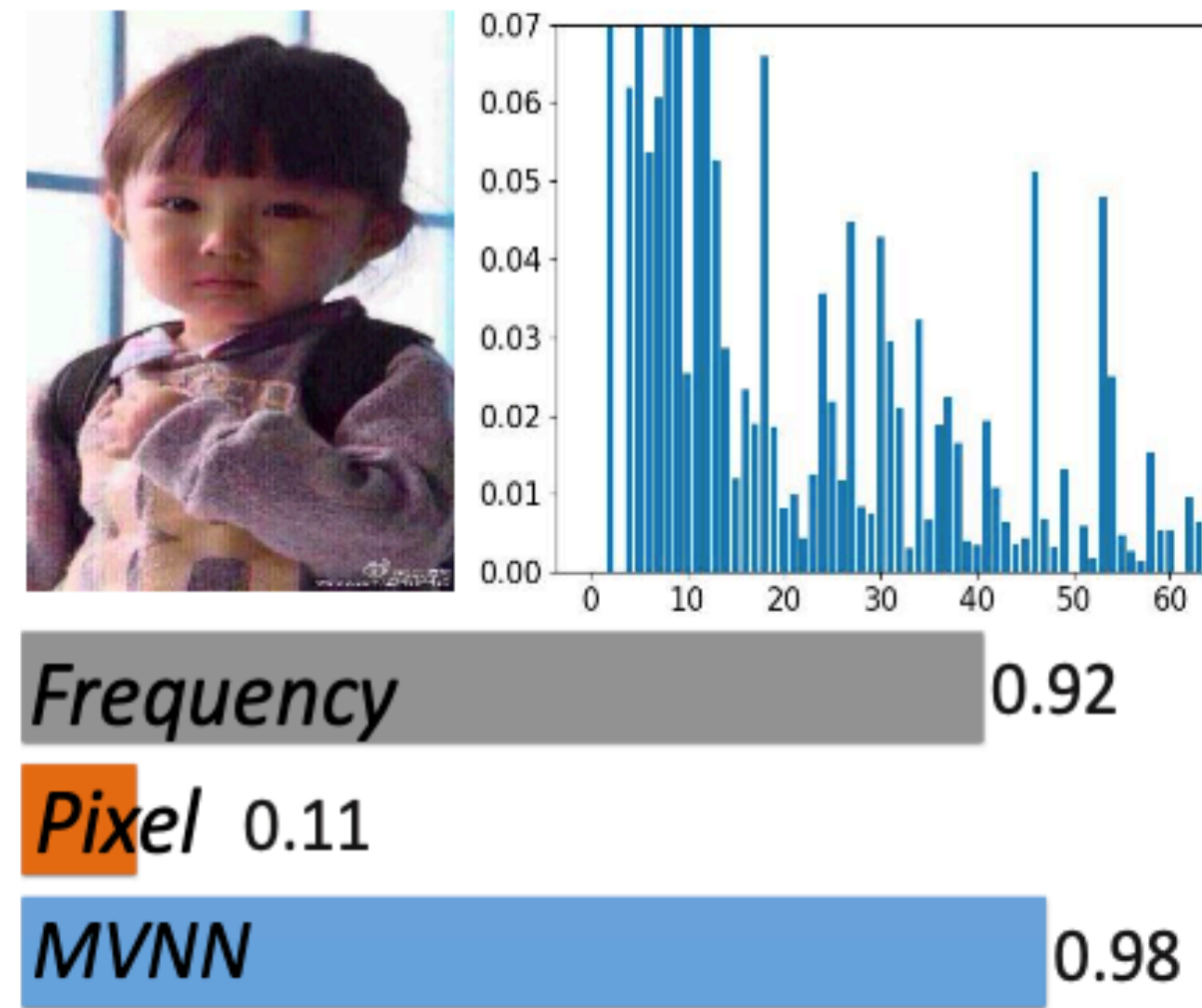


Case Studies

captured by MVNN

but missed by pixel domain

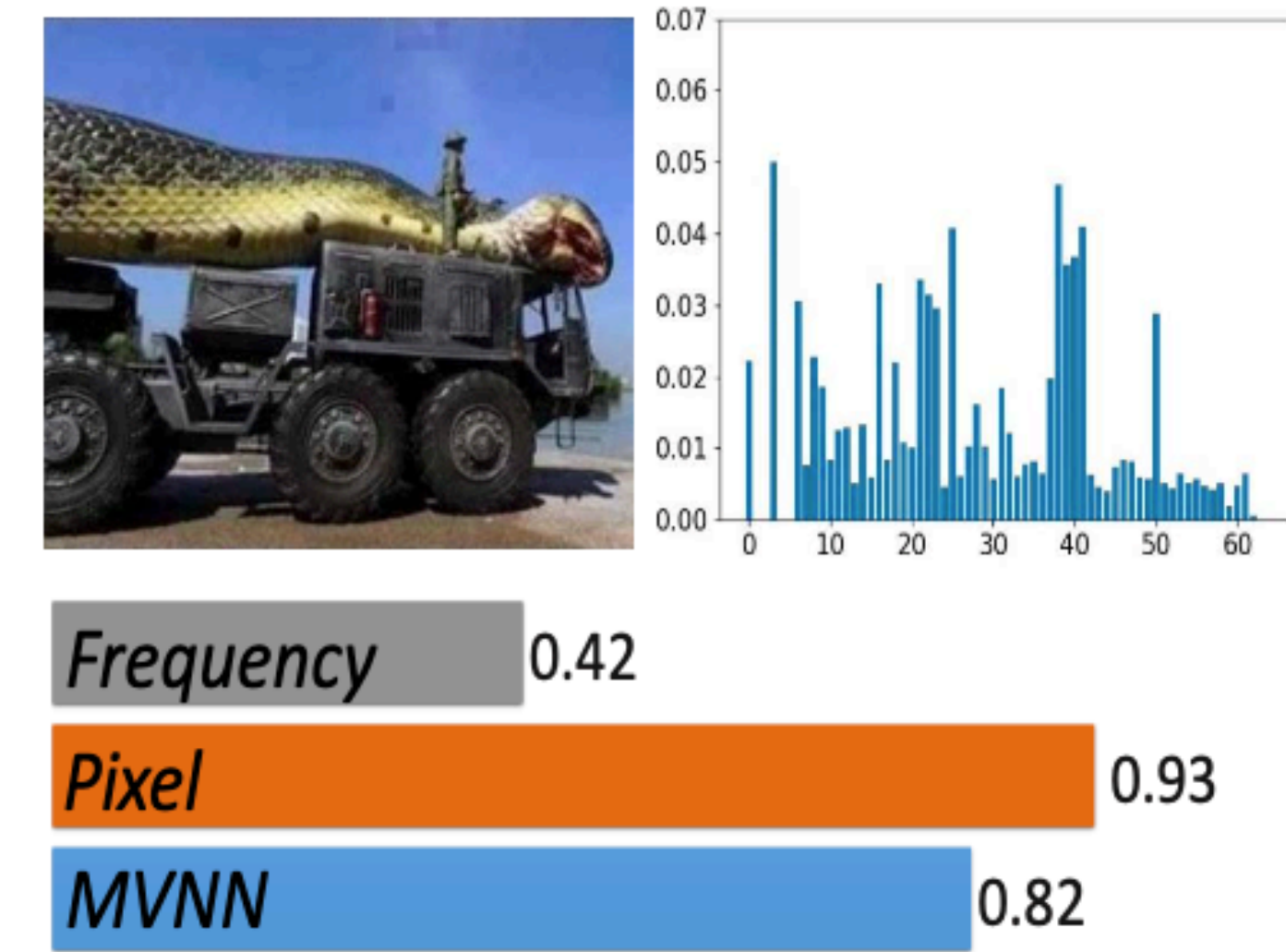
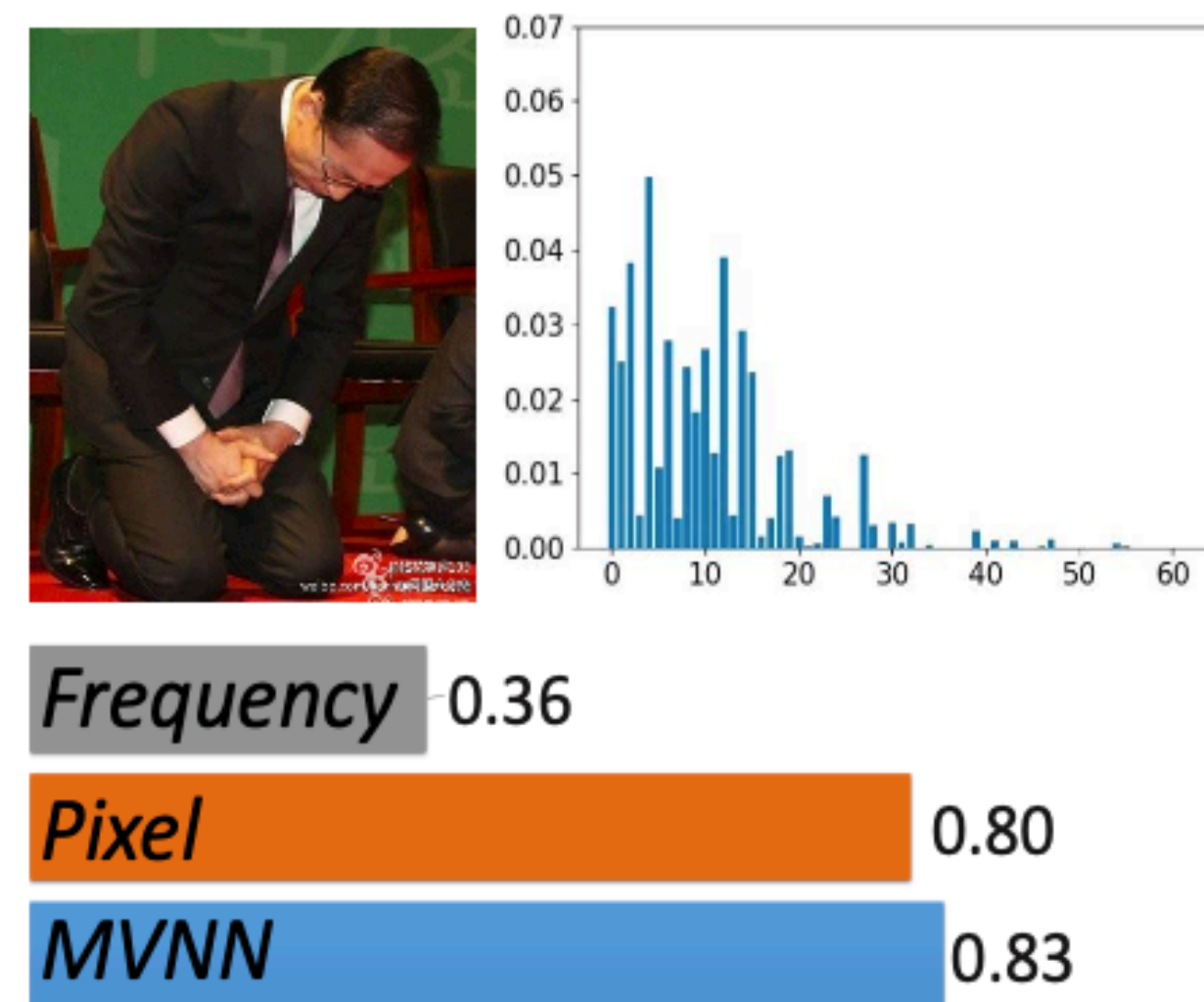


- **Frequency:** their frequency histograms look quite suspicious, showing that they are very likely to be **outdated images**.
- **Pixel:** the two images do not show evidence of fake news
- These two examples are correctly classified by MVNN while the results would totally change without the frequency information

Case Studies

captured by MVNN

but missed by frequency domain



- **Frequency:** histograms in Fig show little evidence of fake news
- **Pixel:** the image contents are eye-attracting and rather dubious
- By combining the information of the frequency and pixel domain, MVNN can easily detect that this is a fake-news image with high confidence.