This paper proposes a lightweight binary HDC framework when resources are limited. The authors improve the HDC inference accuracy by extracting feature information.

Advantages:

1. The number of hypervectors is reduced from (784+256) to (64+9+11) using feature extraction which makes the HDCOG framework significantly lightweight and high-speed.
2. Theoretically, the execution time analysis depicted well which clearly stated that it was better than before.
3. Their orthogonality shows good differentiation between classes which easily cluster the images.
4. They show the comparison table I and figure 5& 7
5. that archives better than before.

Disadvantages:

1. From the paper we may see that Hamming distance will be Hamm=(MagHV (0.0), MagHV (m)) = 0.5×m, where m ∈ {0.0, 0.1, 0.2, ..., 1.0}. There is no reference how it comes. If it is proposed by them, I am not still sure how the constant 0.5 comes.
2. They probably use the local machine for simulation. I am confused why they cite the google colaboratory then. I am not sure which environment is used by them. I am querying as execution performance depends on the environment.
3. They measure the relative inference time which is shown in table I. That’s not a problem. But my concern is that they do not state the real time. I am not sure what is the reason behind it.
4. Figure 4 is confusing. It should be more clear to understand. It is confusing to me how 64x64 becomes 8x8.
5. Their comparison with very old paper seems to me unauthentic.
6. It is confusing why they do not compare their result with the paper “CompHD: Efficient Hyperdimensional Computing Using Model Compression”.

Score: 2/5