Technical writing and design

a. Write a summary for a research paper of your choice.

Research Paper Summary
"An Introduction to Convolutional Neural Networks"

This research paper briefly introduces CNNs, discussing recently published papers and newly formed techniques.

Artificial Neural Networks (ANN) share the same Layers concept as any Deep Neural Networks Algorithms, such as Convolutional Neural Networks (CNN).
ANN architecture:
In ANNs contain three main layers:

- Input Layer
- Hidden Layer
- Output Layer

However, ANN has massive limitations and difficulties when computing image data. They try to solve it by increasing the number of Hidden layers, but that causes:

- Overfitting Problem.
- Computational Complexity Problem.

From this perspective, the CNN algorithm best fits o solve these limitations in computing image data. So, as we have mentioned that CNN shares the same Layers concept, but one of the critical differences is that the CNN neurons include neurons organized into three dimensions (height, width, and depth). The depth does not refer to the total number of layers within the ANN but relates to activation volume.
CNN architecture:

- Input Layer
- Convolutional Layer
  It determines the output of neurons connected to local regions of the input by calculating the scalar product between their weights and the part related to the input volume.
- Pooling Layer
  It aims to reduce the dimensionality of the representation slowly. So, it reduces the number of parameters and the computational complexity of the model.
- Fully-Connected Layer
  It contains neurons directly connected to the neurons in the two adjacent layers without being connected to any layers within them.
- Output Layer

b. Share with us why you selected this paper.

I chose this paper because I used the CNN algorithm in my first challenge (Technical Skills).

c. Share with us the limitations of the authors' work.

They just covered the basics in their paper, which was clear from the headline.

d. Comment on how one can benefit from the authors' work.

It is an excellent paper to get to know CNN's architecture.