DigitNet: Collaborative Image Segmentation and Prediction

Proposed System

This system is designed to perform distributed image-based digit recognition by dividing the workload across multiple client devices. The key steps are as follows:

1. A mobile application (or emulator) captures an image of a numeric digit and splits it into four equal quadrants.

2. Each quadrant is sent as a prediction request to a different client machine over the network.

3. On each client, a Convolutional Neural Network (CNN) processes the assigned quadrant and computes confidence scores for the digit it represents.

4. The confidence arrays from all four clients are returned to the host device, where they are summed into a single array. The digit with the highest combined confidence is selected as the final prediction.

5. Network communication between the host and clients is handled using their IPv4 addresses. These can be identified by running the `ipconfig` command on each client machine.

This approach leverages distributed computation to reduce the load on any single device and demonstrate collaborative prediction in real-time.