**American Sign Language (ASL)**

American Sign Language (ASL) is the primary language used by many deaf individuals in North America, and it is also used by hard-of-hearing and hearing individuals. The language is as rich as spoken languages and employs signs made with the hand, along with facial gestures and bodily postures.

A lot of recent progress has been made towards developing computer vision systems that translate sign language to spoken language. This technology often relies on complex neural network architectures that can detect subtle patterns in streaming video. However, as a first step, towards understanding how to build a translation system, we can reduce the size of the problem by translating individual letters, instead of sentences.

We will train a convolutional neural network to classify images of American Sign Language (ASL) letters. After loading, examining, and preprocessing the data, we will train the network and test its performance.

In the code cell below, we load the training and test data.

* x\_train and x\_test are arrays of image data with shape (num\_samples, 3, 50, 50), corresponding to the training and test datasets, respectively.
* y\_train and y\_test are arrays of category labels with shape (num\_samples,), corresponding to the training and test datasets, respectively.
* Let's examine how many images of each letter can be found in the dataset.
* Each entry in y\_train and y\_test is one of 0, 1, or 2, corresponding to the letters 'A', 'B', and 'C', respectively.
* We will use the arrays y\_train and y\_test to verify that both the training and test sets each have roughly equal proportions of each letter.