DATA COLLECTION FOR SIGN LANGUAGE CLASSIFICATION
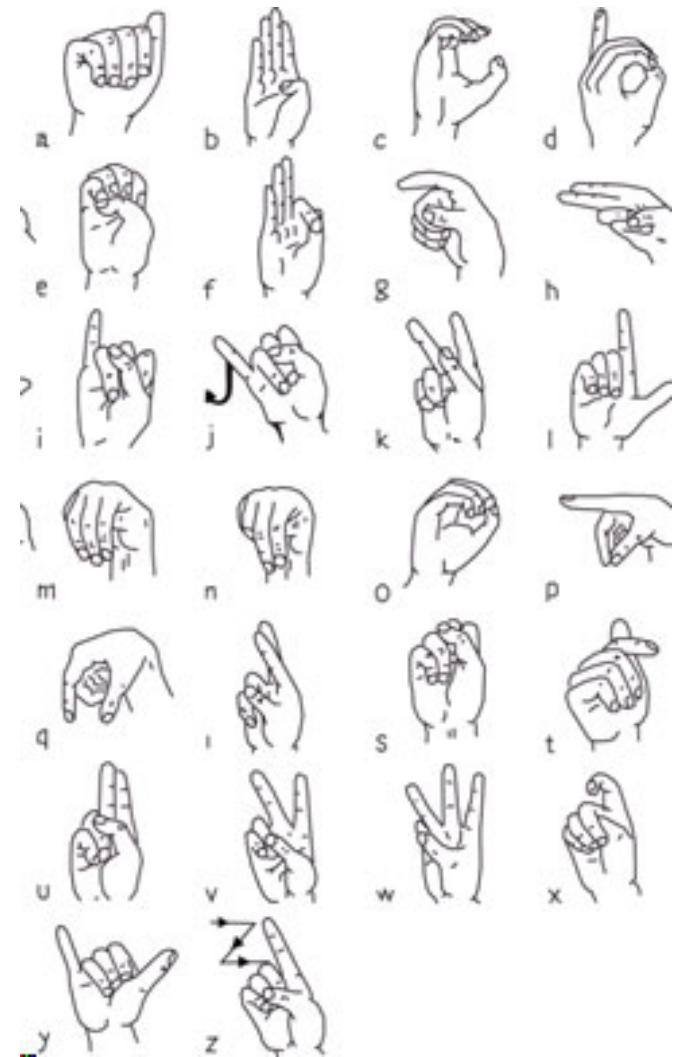
APS 360 TUT-03

WINTER 2019

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AMERICAN SIGN LANGUAGE

- Communication based on Hand Gestures

- One Gesture for each Alphabet with some involving motion sequence

- Motivation of this project is Automatic Sign Language translation using Machine vision

- One step closer to Inclusive Smart Cities for Deaf & Mute Community

https://www.nidcd.nih.gov/sites/default/files/Content%20Images/NIDCD-ASL-hands-2014.jpg

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ASSIGNMENT-3 PART 1 : DATA COLLECTION

- Good Dataset is key for a good ML model
- And sometimes we need to create our own
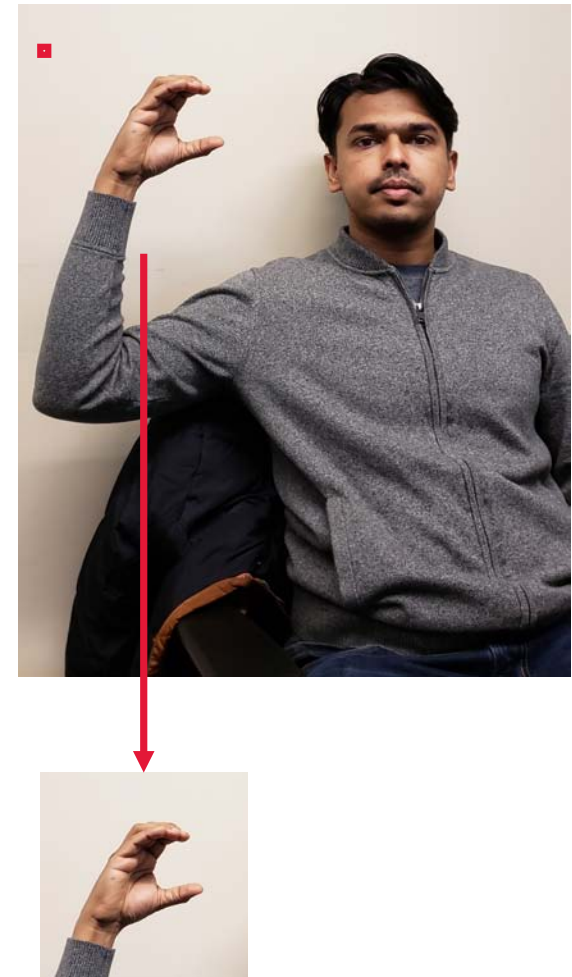
Steps in Data Collection

1. Familiarize with American Sign Language Gestures for letter from A - I (9 letters)
2. Ask your friend to take **three** pictures at slightly different orientation for each letter gesture using your mobile phone
   - Ensure adequate lighting while you are capturing the images.
   - Use Right hand to create gestures (for consistency)
   - Keep your right hand fairly apart from your body and any other obstructions
   - Transfer the Images to your laptop for cleaning

https://static.memrise.com/uploads/things/images/30101096_140417_0005_33.gif
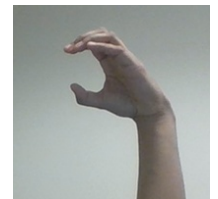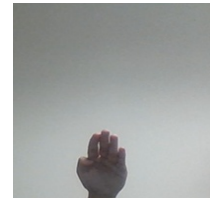
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DATA CLEANING

- During this process, we crop out the unnecessary image parts
- Approximately center the hand on the cropped region
- End up with a SQUARE aspect ratio cropped image.

  - Mac - We can achieve this using the application "Preview"
  - Hold down CMD + Shift will keep square aspect ratio while selecting the hand area
  - Windows 10– Use 'Photos' app to edit and crop the image and keep the aspect ratio as Square
    - Use "Paint" to resize the image to the final image size of 224x224 pixels
  - Linux – You can use GIMP, or imagemagick, or other tools of your choosing

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ACCEPTED IMAGE SPECIFICATION

- Final Image size 224x224 pix. RGB
- File format is .jpg
- Hand approximately centered on the frame
- Hand is not obscured
- Hand should not be cut off
- Follow the ASL gestures posted earlier

SUBMISSION DETAILS

- Image gile names should follow the convention of
  student-number_Alphabet_file-no.jpg
  - Example : 100343434_A_1.jpg
- Zip all the images together and name it with the following convention :
  last-name_student-number.zip
  - Example : last-name_100343434.zip

- Upload the zipped folder in Q.

- We will be anonymizing and combining everyone's images. We will announce when the combined data set will be available for download.

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