# Project Proposal: ASL Translator

Category: Computer Vision and Natural Language
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## Motivation

According to the 2021 American Community Survey (ACS), about 3.6% of the U.S. population, or about 11 million individuals, consider themselves deaf or have serious difficulty hearing.[1] Moreover, over 6,500 infants are identified as deaf or hard of hearing through newborn screening each year in the United States[2], and more than 90 percent of deaf children are born to hearing parents[3].

ASL, American Sign Language, is the sign language most commonly used by the Deaf and Hard of Hearing people in the United States.[4] For others to communicate with those with hearing loss, ASL can be the most effective way. However, learning ASL is hard and time consuming, and only 2.8% of American Adults use ASL[5]. Hence, creating an ASL to English translator can drastically reduce the communication barrier with the deaf and hard of hearing people.

## Method

I plan to apply deep learning techniques to train a model to classify a list of pre-processed images and/or video frames into English letters.

## Intended Experiments

I intended to evaluate the accuracy and latency of different models, such as logistic regression, neural networks, using the given test data from
https://www.kaggle.com/competitions/asl-signs/data

## Dataset

- https://www.kaggle.com/competitions/asl-signs/data

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[1] https://nationaldeafcenter.org/faq/how-many-deaf-people-live-in-the-united-states
[2] https://newbornscreening.hrsa.gov/conditions/deafness-and-hearing-loss
[3] https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing
[4] https://cdhh.ri.gov/information-referral/american-sign-language.php
[5] https://pubmed.ncbi.nlm.nih.gov/36423340/