American Sign Language Handshape Recognition with Vertex AI

F33 created a GCP-based laboratory so LLCN could experiment different ML models with different datasets using ML Ops infrastructure. We created one ML Model using AutoML.

The challenge

LLCN wants to develop AI models trained on the recognition of handshape parts rather than signs as wholes (whole-word approach is prevalent in current models) because it approximates approaches to automatic speech recognition. The lab wants to recognize and classify the most common American Sign Language handshapes and handshape parts to boost linguistic research on American Sign Language.

The solution

The business problem was formulated as image/video (stream of images) classification problem where dataset was a set of pairs: video, label. Labels were provided by the SDSU an represented fact of given hand gesture being presented in the video. Classifier was based on AutoML Vertex AI model.

The results

One outcomes of this project was flexible and scalable lab for testing various ML approaches to American Sign Language. Another result was standardized and reproducible workflow to experiment and compare different ML models. They also have a baseline model to compare to.

> 66 An independent multi-channel training and recognition will support automatic annotation of signs and their parts, such as handshape, what fingers are selected, are they spread or bent, etc., and can aid or fully automate corpus annotation. [...] Models informed by findings from sign linguistics research will lead to systems that more closely mirror real-world sign language usage. 99
>
> Zed Sehyr, Ph.D, Research Scientist, SDSU Laboratory for Language and Cognitive Neuroscience

About SDSU Laboratory for Language and Cognitive Neuroscience

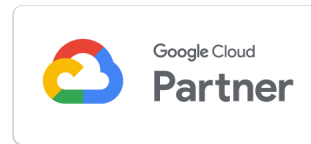The LLCN is a laboratory at SDSU that focuses on Language and Cognitive Neuroscience.

Industry: Education

Primary project location: United States

About Fourteen33 Inc.

F33 is a Cloud, AI and Automation consulting company that was born from within Google Cloud.

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