CS3 Hook Document
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Using ResNet50 To Help Interpret the ASL Alphabet and Improve Accessibility

Technology accessibility has been a widely studied topic in the world of computer science, however it still remains one of the most underlooked parts of development in the modern age. The UN estimates that around 15% of the world's population and 26% of the US currently has at least one form of disability. Despite these numbers, finding websites and apps with an ample amount of accessibility options remains a challenge. According to a report that looked at the top 1,000,000 home pages, only around 3% of them included features that aided people with disabilities. The problem that we are focused on today is finding a way to help improve the user experience of the deaf/hard of hearing community. ASL is the primary language for this community, which means that it accounts for around half a million people in the US having it as their primary language. The mission is to find a way to use computer vision in order to interpret images of the ASL alphabet in order to correctly interpret them and assign the correct labels. This could potentially be a huge stepping stone in the world of accessibility for online users as it allows them to have a more comfortable way to communicate on the internet.

In the past decade there have been major strides in the world of AI and Machine Learning, with the modern world seemingly shifting many parts of our daily lives towards incorporating it into them. This is of great advantage to us as we want to use models developed by machine learning/computer vision experts to help aid us in our quest to improve accessibility. Specifically, you will be tasked with creating a prototype system using the ResNet50 base model that was originally created by Microsoft engineers. You'll hold full control of the development pipeline: selecting how to adapt the model, structuring the data flow, determining how to evaluate outputs, and addressing the challenges unique to accessibility. By the end, you will have a functional prototype that accepts real web images and produces accessibility-focused outputs. This is an opportunity to build technology with impact, technology that could potentially make the internet clearer, more inclusive, and more navigable for users who depend on ASL in their daily lives.

GitHub: https://github.com/arotwell/cs3