**When to use an API instead of building your own solution**

- [Instructor] Depending on the kind of project that you're building, sometimes it makes more sense to use an off-the-shelf image recognition API instead of building your own custom solution. All the major cloud vendors now provide image recognition APIs. So if you're using cloud services from Google, Amazon, or Microsoft, you can also use their image recognition capabilities. In addition to the products offered by the large cloud vendors, there are also many start-ups and smaller companies that offer image recognition APIs.All of these products will let you upload an image and get back a list of objects that appear in that image. And best of all, using these APIs, usually only requires a few lines of code.

The downside, is that these systems have a built in list of objects that they recognize, so you're limited to recognizing the kinds of objects that they already understand. So when might you choose to use an API instead of training your own machine learning model?First, if you don't have any training data, you might not have any other choice. The APIs have their own built-in image recognition models that are already pre-trained on many millions of images, so you don't need to do any training yourself. Next, if you need to detect many different kinds of objects in your application, it's often easier to use an API.

Google's Cloud Vision API can detect thousands of different objects, because they have access to a nearly unlimited amount of training data. It would be very difficult to train your own model at that scale. Along those same lines, if you only need to detect common types of objects, likes cars or buildings or animals, it might be easier to use an API. These systems are pre-trained to recognize common types of objects. Sometimes they can even give you very granular results, by telling you the specific breed of dog if a dog is detected.Most importantly, these APIs are quick and easy to use. So if you don't have the time or money to build your own solution, you can easily test out an API and see if it's good enough for your project.

But there are also times when using an image recognition API just won't work for your project. If you're a position where you have access to specialized training data, that isn't available to a company like Microsoft or Google, it might be worth building your own model. This is also true if you're trying to detect something very specialized, that might only apply to your industry. You're not likely to find an off-the-shelf solution that works in very specialized cases. There are also times when the training data is just too sensitive to share with anyone else. For example, many medical applications train their own models, because they can't share the underlying patient data that's used to train the model.

There's also cases where the training data might be a trade secret. But sometimes it makes sense to combine your own model with an off-the-shelf model. In addition to basic image recognition, all of the cloud services off their own special features. For example, Google Cloud Vision can detect the logos of well known companies and they can detect famous landmarks in photographs. In some cases, you might use those features in cooperation with your own custom model to solve a larger problem. For example, you can build you own model to recognize different types of clothing, and then use Google's API to recognize which logos appear on that clothing. Another special case is if you need optical character recognition, or OCR.

That's where you wanna pull all the text out of a photograph. It's very difficult to build a high quality OCR system. If you need this capability, I recommend just using Google's API for this. You can use the API to extract text from an image, while still building your own models to do everything else. So which vendor has the best API? There's no simple answer. All of the vendors are constantly improving their systems with more training data and adding new features. Depending on the type of images you're working with, one vendor might work better than another. I recommend trying out a few different vendors and seeing what works best for you.

You can also take into consideration what extra features the vendor offers, like logo recognition or OCR. For example, Google's particularly good at OCR. And of course, you can always use APIs from multiple vendors. If no one company offers all the features you need, you can combine them and use more than one.