**Computer Vision**

To communicate with the Computer Vision service, call the computervision\_endpoint function with the service URL and key. Rather than a key, you can also supply an OAuth token obtained with the AzureAuth package.

library(AzureVision)

vis <- computervision\_endpoint(

url="https://accountname.cognitiveservices.azure.com/",

key="account\_key"

)

# images can be specified as a filename, Internet URL, or raw vector

bill\_url <- "https://news.microsoft.com/uploads/2014/09/billg1\_print.jpg"

analyze(vis, bill\_url)

# $categories

# name score

# 1 people\_ 0.953125

describe(vis, bill\_url)

# $tags

# [1] "person" "man" "suit" "clothing" "necktie" "wearing" "glasses" "looking" "holding" "standing" "older"

# [12] "posing" "business" "old" "dressed" "front" "sitting" "black" "hat" "white" "sign" "phone"

# $captions

# text confidence

# 1 Bill Gates wearing a suit and tie 0.9954072

**Custom Vision**

Custom Vision defines two different types of endpoint: a training endpoint, and a prediction endpoint. To communicate with these, call the customvision\_training\_endpoint and customvision\_prediction\_endpoint functions with the service URL and key.

# training a model

cusvis <- customvision\_training\_endpoint(

url="https://location.api.cognitive.microsoft.com/",

key="training\_key"

)

# different projects can exist on the one endpoint

list\_projects(cusvis)

# create a classification project (one tag/label per image)

proj <- create\_classification\_project(cusvis, "myproject")

img1 <- dir("path/to/images/tag1", full.names=TRUE)

img2 <- dir("path/to/images/tag2", full.names=TRUE)

add\_images(proj, img1, tags="tag1")

add\_images(proj, img2, tags="tag2")

# train the model

mod <- train\_model(proj)

# publish to the prediction resource (use AzureRMR framework to get resource ID)

pred\_res <- AzureRMR::get\_azure\_login("mytenant")$

get\_subscription("sub\_id")$

get\_resource\_group("rgname")$

get\_cognitive\_service("cusvis\_prediction")

publish\_model(mod, "mymodel", pred\_res)

# get predictions from the prediction endpoint

cusvis\_pred <- customvision\_prediction\_endpoint(

url="https://location.api.cognitive.microsoft.com/",

key="prediction\_key"

)

# must supply project ID to access the published service

project\_id <- proj$project$id

cusvis\_service <- classification\_service(cusvis\_pred, project\_id, "mymodel")

predict(cusvis\_service, "testimage.jpg")

**Resource Manager interface**

You can create Computer Vision and Custom Vision resources using the AzureRMR framework.

For Computer Vision, the available service tiers are F0 (free, limited to 20 API calls per minute and 5k calls per month) and S1 (up to 10 calls per second). For Custom Vision, the tiers are F0 (free, limited to 2 projects for training and 10k transactions/month for prediction) and S0. Note that Custom Vision requires at least *two* resources: one for training, and the other for prediction.

rg <- AzureRMR::get\_azure\_login("yourtenant")$

get\_subscription("sub\_id")$

get\_resource\_group("rgname")

# Computer Vision

rg$create\_cognitive\_service("myvis", service\_type="ComputerVision", service\_tier="S1")

# Custom Vision (training and prediction)

rg$create\_cognitive\_service("mycustvis", service\_type="CustomVision", service\_tier="S0")

rg$create\_cognitive\_service("mycustvispred", service\_type="CustomVision.Prediction", service\_tier="S0")