**EMERGING METHODS FOR EARLY DETECTION OF**

**FOREST FIRE**

**TRAIN IMAGE CLASSIFICATION MODEL**

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| **Date** | 12 November 2022 |
| **Team ID** | PNT2022TMID07051 |
| **Project Name** | Emerging Methods for Early Detection of Forest Fires |

pwd

'/home/wsuser/work'

**!**pip install keras

**!**pip install tensorflow

**!**pip install opencv-python

Requirement already satisfied: keras in /opt/conda/envs/Python-3.9/lib/python3. 9/site-packages (2.10.0)

Requirement already satisfied: tensorflow in /opt/conda/envs/Python-3.9/lib/pyt hon3.9/site-packages (2.10.0)

Requirement already satisfied: wrapt>=1.11.0 in /opt/conda/envs/Python-3.9/lib

/python3.9/site-packages (from tensorflow) (1.12.1)

Requirement already satisfied: typing-extensions>=3.6.6 in /opt/conda/envs/Pyt hon-3.9/lib/python3.9/site-packages (from tensorflow) (4.1.1)

Requirement already satisfied: grpcio<2.0,>=1.24.3 in /opt/conda/envs/Python- 3.9/lib/python3.9/site-packages (from tensorflow) (1.42.0)

Requirement already satisfied: h5py>=2.9.0 in /opt/conda/envs/Python-3.9/lib/p ython3.9/site-packages (from tensorflow) (3.2.1)

Requirement already satisfied: absl-py>=1.0.0 in /opt/conda/envs/Python-3.9/lib

/python3.9/site-packages (from tensorflow) (1.3.0)

Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /opt/con da/envs/Python-3.9/lib/python3.9/site-packages (from tensorflow) (0.23.1) Requirement already satisfied: tensorflow-estimator<2.11,>=2.10.0 in /opt/cond a/envs/Python-3.9/lib/python3.9/site-packages (from tensorflow) (2.10.0) Requirement already satisfied: google-pasta>=0.1.1 in /opt/conda/envs/Python- 3.9/lib/python3.9/site-packages (from tensorflow) (0.2.0)

Requirement already satisfied: gast<=0.4.0,>=0.2.1 in /opt/conda/envs/Python-3

.9/lib/python3.9/site-packages (from tensorflow) (0.4.0)

Requirement already satisfied: flatbuffers>=2.0 in /opt/conda/envs/Python-3.9/li b/python3.9/site-packages (from tensorflow) (2.0)

Requirement already satisfied: astunparse>=1.6.0 in /opt/conda/envs/Python-3.9

/lib/python3.9/site-packages (from tensorflow) (1.6.3)

Requirement already satisfied: six>=1.12.0 in /opt/conda/envs/Python-3.9/lib/py thon3.9/site-packages (from tensorflow) (1.15.0)

Requirement already satisfied: libclang>=13.0.0 in /opt/conda/envs/Python-3.9/l ib/python3.9/site-packages (from tensorflow) (14.0.6)

Requirement already satisfied: keras-preprocessing>=1.1.1 in /opt/conda/envs/P ython-3.9/lib/python3.9/site-packages (from tensorflow) (1.1.2)

Requirement already satisfied: setuptools in /opt/conda/envs/Python-3.9/lib/pyth on3.9/site-packages (from tensorflow) (58.0.4)

Requirement already satisfied: numpy>=1.20 in /opt/conda/envs/Python-3.9/lib/ python3.9/site-packages (from tensorflow) (1.20.3)

Requirement already satisfied: tensorboard<2.11,>=2.10 in /opt/conda/envs/Pyt hon-3.9/lib/python3.9/site-packages (from tensorflow) (2.10.1)

Requirement already satisfied: protobuf<3.20,>=3.9.2 in /opt/conda/envs/Pytho n-3.9/lib/python3.9/site-packages (from tensorflow) (3.19.1)

Requirement already satisfied: packaging in /opt/conda/envs/Python-3.9/lib/pyt hon3.9/site-packages (from tensorflow) (21.3)

Requirement already satisfied: opt-einsum>=2.3.2 in /opt/conda/envs/Python-3. 9/lib/python3.9/site-packages (from tensorflow) (3.3.0)

Requirement already satisfied: termcolor>=1.1.0 in /opt/conda/envs/Python-3.9/ lib/python3.9/site-packages (from tensorflow) (1.1.0)

Requirement already satisfied: keras<2.11,>=2.10.0 in /opt/conda/envs/Python- 3.9/lib/python3.9/site-packages (from tensorflow) (2.10.0)

Requirement already satisfied: wheel<1.0,>=0.23.0 in /opt/conda/envs/Python-3

.9/lib/python3.9/site-packages (from astunparse>=1.6.0->tensorflow) (0.37.0) Requirement already satisfied: google-auth<3,>=1.6.3 in /opt/conda/envs/Pytho n-3.9/lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->tensorflow) (1.23.0)

Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /opt/conda/env s/Python-3.9/lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->tens orflow) (1.6.0)

Requirement already satisfied: werkzeug>=1.0.1 in /opt/conda/envs/Python-3.9/ lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->tensorflow) (2.0.2

)

Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /opt/conda/ envs/Python-3.9/lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->t ensorflow) (0.4.4)

Requirement already satisfied: requests<3,>=2.21.0 in /opt/conda/envs/Python- 3.9/lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->tensorflow) (2

.26.0)

Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /opt/co nda/envs/Python-3.9/lib/python3.9/site-packages (from tensorboard<2.11,>=2.1 0->tensorflow) (0.6.1)

Requirement already satisfied: markdown>=2.6.8 in /opt/conda/envs/Python-3.9

/lib/python3.9/site-packages (from tensorboard<2.11,>=2.10->tensorflow) (3.3. 3)

Requirement already satisfied: rsa<5,>=3.1.4 in /opt/conda/envs/Python-3.9/lib/ python3.9/site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2. 10->tensorflow) (4.7.2)

Requirement already satisfied: pyasn1-modules>=0.2.1 in /opt/conda/envs/Pyth on-3.9/lib/python3.9/site-packages (from google-auth<3,>=1.6.3->tensorboard< 2.11,>=2.10->tensorflow) (0.2.8)

Requirement already satisfied: cachetools<5.0,>=2.0.0 in /opt/conda/envs/Pytho n-3.9/lib/python3.9/site-packages (from google-auth<3,>=1.6.3->tensorboard<2

.11,>=2.10->tensorflow) (4.2.2)

Requirement already satisfied: requests-oauthlib>=0.7.0 in /opt/conda/envs/Pyth on-3.9/lib/python3.9/site-packages (from google-auth-oauthlib<0.5,>=0.4.1->te nsorboard<2.11,>=2.10->tensorflow) (1.3.0)

Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /opt/conda/envs/Python

-3.9/lib/python3.9/site-packages (from pyasn1-modules>=0.2.1->google-auth<3

,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.4.8)

Requirement already satisfied: certifi>=2017.4.17 in /opt/conda/envs/Python-3. 9/lib/python3.9/site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>= 2.10->tensorflow) (2022.9.24)

Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/conda/envs/Py thon-3.9/lib/python3.9/site-packages (from requests<3,>=2.21.0->tensorboard< 2.11,>=2.10->tensorflow) (2.0.4)

Requirement already satisfied: urllib3<1.27,>=1.21.1 in /opt/conda/envs/Python

-3.9/lib/python3.9/site-packages (from requests<3,>=2.21.0->tensorboard<2.11,

>=2.10->tensorflow) (1.26.7)

Requirement already satisfied: idna<4,>=2.5 in /opt/conda/envs/Python-3.9/lib/ python3.9/site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10-

>tensorflow) (3.3)

Requirement already satisfied: oauthlib>=3.0.0 in /opt/conda/envs/Python-3.9/li b/python3.9/site-packages (from requests-oauthlib>=0.7.0->google-auth-oauthli b<0.5,>=0.4.1->tensorboard<2.11,>=2.10->tensorflow) (3.2.1)

Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /opt/conda/envs/Pyt hon-3.9/lib/python3.9/site-packages (from packaging->tensorflow) (3.0.4) Requirement already satisfied: opencv-python in /opt/conda/envs/Python-3.9/lib

/python3.9/site-packages (4.6.0.66)

Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/Python-3.9/li b/python3.9/site-packages (from opencv-python) (1.20.3)

**from** keras.models **import** Sequential

**from** keras.layers **import** Dense

**from** keras.layers **import** Convolution2D **from** keras.layers **import** MaxPooling2D **from** keras.layers **import** Flatten

**from** tensorflow.keras.preprocessing.image **import** ImageDataGenerator train **=** ImageDataGenerator(rescale**=**1**/**255)

test **=** ImageDataGenerator(rescale**=**1**/**255)

**import** os**,** types

**import** pandas **as** pd

**from** botocore.client **import** Config

**import** ibm\_boto3

**def** iter (self): **return** 0

*# @hidden\_cell*

*# The following code accesses a file in your IBM Cloud Object Storage. It includes your credentials.*

*# You might want to remove those credentials before you share the notebook.*

cos\_client **=** ibm\_boto3**.**client(service\_name**=**'s3',

ibm\_api\_key\_id**=**'3BMAZS\_5xP1HSVGnT8KJD21UbTaJ0ulrXwY46T17Z\_G T',

ibm\_auth\_endpoint**=**"https://iam.cloud.ibm.com/oidc/token", config**=**Config(signature\_version**=**'oauth'), endpoint\_url**=**'https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket **=** 'imageclassification-donotdelete-pr-xjpygf3pbzklzm' object\_key **=** 'archive.zip'

streaming\_body\_2 **=** cos\_client**.**get\_object(Bucket**=**bucket, Key**=**object\_key)['Body']

*# Your data file was loaded into a botocore.response.StreamingBody object.*

*# Please read the documentation of ibm\_boto3 and pandas to learn more about the possibilities to load the data.*

*# ibm\_boto3 documentation: https://ibm.github.io/ibm-cos-sdk-python/*

*# pandas documentation:* [*http://pandas.pydata.org/*](http://pandas.pydata.org/)

**from** io **import** BytesIO

**import** zipfile

unzip **=** zipfile**.**ZipFile(BytesIO(streaming\_body\_2**.**read()),'r') file\_paths **=** unzip**.**namelist()

**for** path **in** file\_paths: unzip**.**extract(path)

pwd '/home/wsuser/work'

**import** os

filenames **=** os**.**listdir('/home/wsuser/work/Dataset/Dataset/train\_set')

x\_train **=** train\_dataset **=**

train**.**flow\_from\_directory("/home/wsuser/work/Dataset/Dataset/train\_set",

target\_size**=** (64,64),

batch\_size **=** 32, class\_mode **=** 'binary')

x\_test **=** test\_dataset **=**

test**.**flow\_from\_directory("/home/wsuser/work/Dataset/Dataset/test\_set",

target\_size**=** (64,64),

batch\_size **=** 32, class\_mode **=** 'binary')

Found 436 images belonging to 2 classes. Found 121 images belonging to 2 classes.

x\_test**.**class\_indices

{'forest': 0, 'with fire': 1} model **=** Sequential()

model**.**add(Convolution2D(32,(3,3),activation**=**'relu',input\_shape**=**(64,64,3))) model**.**add(MaxPooling2D(2,2))

model**.**add(Flatten())

model**.**add(Dense(512,activation**=**'relu')) model**.**add(Dense(1,activation**=**'sigmoid'))

model**.**compile(optimizer**=**"adam",loss**=**"binary\_crossentropy",metrics**=**["accura cy"])

model**.**fit(x\_train,steps\_per\_epoch**=**14

,epochs**=**10,validation\_data**=**x\_test,validation\_steps**=**4)

Epoch 1/10

14/14 [==============================] - 18s 1s/step - loss: 2.4843 -

accuracy: 0.6101 - val\_loss: 0.2740 - val\_accuracy: 0.8843 Epoch 2/10

14/14 [==============================] - 17s 1s/step - loss: 0.6150 -

accuracy: 0.8142 - val\_loss: 0.3429 - val\_accuracy: 0.9008 Epoch 3/10

14/14 [==============================] - 17s 1s/step - loss: 0.2586 -

accuracy: 0.8807 - val\_loss: 0.0783 - val\_accuracy: 0.9752 Epoch 4/10

14/14 [==============================] - 16s 1s/step - loss: 0.1704 -

accuracy: 0.9358 - val\_loss: 0.0559 - val\_accuracy: 0.9835 Epoch 5/10

14/14 [==============================] - 17s 1s/step - loss: 0.1200 -

accuracy: 0.9564 - val\_loss: 0.0447 - val\_accuracy: 0.9917 Epoch 6/10

14/14 [==============================] - 17s 1s/step - loss: 0.1003 -

accuracy: 0.9656 - val\_loss: 0.0306 - val\_accuracy: 1.0000 Epoch 7/10

14/14 [==============================] - 17s 1s/step - loss: 0.0620 -

accuracy: 0.9839 - val\_loss: 0.0183 - val\_accuracy: 1.0000 Epoch 8/10

14/14 [==============================] - 17s 1s/step - loss: 0.0478 -

accuracy: 0.9862 - val\_loss: 0.0122 - val\_accuracy: 1.0000 Epoch 9/10

14/14 [==============================] - 17s 1s/step - loss: 0.0380 -

accuracy: 0.9908 - val\_loss: 0.0120 - val\_accuracy: 1.0000 Epoch 10/10

14/14 [==============================] - 16s 1s/step - loss: 0.0286 -

accuracy: 0.9954 - val\_loss: 0.0094 - val\_accuracy: 1.0000 model**.**save("forest1.h5")

**!**tar -zcvf image-classification-model\_new.tgz forest1.h5 forest1.h5

ls **-**1

**Dataset**/ forest1.h5

image-classification-model\_new.tgz

**!**pip install watson-machine-learning-client --upgrade Collecting watson-machine-learning-client

Downloading watson\_machine\_learning\_client-1.0.391-py3-none-any.whl (53

8 kB)

|████████████████████████████████| 538 kB 15.2 MB/s

eta 0:00:01

Requirement already satisfied: requests in /opt/conda/envs/Python-3.9/lib/pytho n3.9/site-packages (from watson-machine-learning-client) (2.26.0) Requirement already satisfied: tabulate in /opt/conda/envs/Python-3.9/lib/pytho n3.9/site-packages (from watson-machine-learning-client) (0.8.9)

Requirement already satisfied: tqdm in /opt/conda/envs/Python-3.9/lib/python3. 9/site-packages (from watson-machine-learning-client) (4.62.3)

Requirement already satisfied: boto3 in /opt/conda/envs/Python-3.9/lib/python3. 9/site-packages (from watson-machine-learning-client) (1.18.21)

Requirement already satisfied: certifi in /opt/conda/envs/Python-3.9/lib/python3

.9/site-packages (from watson-machine-learning-client) (2022.9.24) Requirement already satisfied: ibm-cos-sdk in /opt/conda/envs/Python-3.9/lib/p ython3.9/site-packages (from watson-machine-learning-client) (2.11.0) Requirement already satisfied: urllib3 in /opt/conda/envs/Python-3.9/lib/python 3.9/site-packages (from watson-machine-learning-client) (1.26.7)

Requirement already satisfied: pandas in /opt/conda/envs/Python-3.9/lib/python 3.9/site-packages (from watson-machine-learning-client) (1.3.4)

Requirement already satisfied: lomond in /opt/conda/envs/Python-3.9/lib/python 3.9/site-packages (from watson-machine-learning-client) (0.3.3)

Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /opt/conda/envs/Pyth on-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-clie nt) (0.10.0)

Requirement already satisfied: botocore<1.22.0,>=1.21.21 in /opt/conda/envs/P ython-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-c lient) (1.21.41)

Requirement already satisfied: s3transfer<0.6.0,>=0.5.0 in /opt/conda/envs/Pyth on-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-clie nt) (0.5.0)

Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /opt/conda/envs/P ython-3.9/lib/python3.9/site-packages (from botocore<1.22.0,>=1.21.21->boto3

->watson-machine-learning-client) (2.8.2)

Requirement already satisfied: six>=1.5 in /opt/conda/envs/Python-3.9/lib/pytho n3.9/site-packages (from python-dateutil<3.0.0,>=2.1->botocore<1.22.0,>=1.21

.21->boto3->watson-machine-learning-client) (1.15.0)

Requirement already satisfied: ibm-cos-sdk-s3transfer==2.11.0 in /opt/conda/en vs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk->watson-machine

-learning-client) (2.11.0)

Requirement already satisfied: ibm-cos-sdk-core==2.11.0 in /opt/conda/envs/Py thon-3.9/lib/python3.9/site-packages (from ibm-cos-sdk->watson-machine-learn ing-client) (2.11.0)

Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/conda/envs/Py thon-3.9/lib/python3.9/site-packages (from requests->watson-machine-learning- client) (2.0.4)

Requirement already satisfied: idna<4,>=2.5 in /opt/conda/envs/Python-3.9/lib/ python3.9/site-packages (from requests->watson-machine-learning-client) (3.3) Requirement already satisfied: pytz>=2017.3 in /opt/conda/envs/Python-3.9/lib/ python3.9/site-packages (from pandas->watson-machine-learning-client) (2021. 3)

Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/Python-3.9/li b/python3.9/site-packages (from pandas->watson-machine-learning-client) (1.2 0.3)

Installing collected packages: watson-machine-learning-client Successfully installed watson-machine-learning-client-1.0.391

*#replace the credentials that you got from Watson Machine Learning service*

**from** ibm\_watson\_machine\_learning **import** APIClient wml\_credentials **=** {

"url": "https://us-south.ml.cloud.ibm.com", "apikey": "3ls6KARqw4K7Icbfhp-

X36q5Q5UtIjkPBVHg67294jVf"

}

client **=** APIClient(wml\_credentials) client **=** APIClient(wml\_credentials)

**def** guid\_from\_space\_name(client, space\_name): space **=** client**.**spaces**.**get\_details() *#print(space)*

**return**(next(item **for** item **in** space['resources']**if** item['entity']["name"] **==**

space\_name)['metadata']['id'])

space\_uid **=** guid\_from\_space\_name(client, 'imageclassification') print("Space UID = " **+** space\_uid)

Space UID = 34eea79c-4e6f-446b-8079-3cbc5fe1e0fb client**.**set**.**default\_space(space\_uid)

'SUCCESS'

client**.**software\_specifications**.**list()

- - -

NAME ASSET\_ID TYPE

default\_py3.6 0062b8c9-8b7d-44a0-a9b9-46c416adcbd9 base kernel-spark3.2-scala2.12 020d69ce-7ac1-5e68-ac1a-31189867356a base pytorch-onnx\_1.3-py3.7-edt 069ea134-3346-5748-b513-49120e15d288 base scikit-learn\_0.20-py3.6 09c5a1d0-9c1e-4473-a344-eb7b665ff687 base spark-mllib\_3.0-scala\_2.12 09f4cff0-90a7-5899-b9ed-1ef348aebdee base pytorch-onnx\_rt22.1-py3.9 0b848dd4-e681-5599-be41-b5f6fccc6471 base ai-function\_0.1-py3.6 0cdb0f1e-5376-4f4d-92dd-da3b69aa9bda base shiny-r3.6 0e6e79df-875e-4f24-8ae9-62dcc2148306 base tensorflow\_2.4-py3.7-horovod 1092590a-307d-563d-9b62-4eb7d64b3f22 bas e

pytorch\_1.1-py3.6 10ac12d6-6b30-4ccd-8392-3e922c096a92 base tensorflow\_1.15-py3.6-ddl 111e41b3-de2d-5422-a4d6-bf776828c4b7 base autoai-kb\_rt22.2-py3.10 125b6d9a-5b1f-5e8d-972a-b251688ccf40 base runtime-22.1-py3.9 12b83a17-24d8-5082-900f-0ab31fbfd3cb base scikit-learn\_0.22-py3.6 154010fa-5b3b-4ac1-82af-4d5ee5abbc85 base default\_r3.6 1b70aec3-ab34-4b87-8aa0-a4a3c8296a36 base pytorch-onnx\_1.3-py3.6 1bc6029a-cc97-56da-b8e0-39c3880dbbe7 base kernel-spark3.3-r3.6 1c9e5454-f216-59dd-a20e-474a5cdf5988 base pytorch-onnx\_rt22.1-py3.9-edt 1d362186-7ad5-5b59-8b6c-9d0880bde37f base tensorflow\_2.1-py3.6 1eb25b84-d6ed-5dde-b6a5-3fbdf1665666 base spark-mllib\_3.2 20047f72-0a98-58c7-9ff5-a77b012eb8f5 base tensorflow\_2.4-py3.8-horovod 217c16f6-178f-56bf-824a-b19f20564c49 base runtime-22.1-py3.9-cuda 26215f05-08c3-5a41-a1b0-da66306ce658 base do\_py3.8 295addb5-9ef9-547e-9bf4-92ae3563e720 base

autoai-ts\_3.8-py3.8 2aa0c932-798f-5ae9-abd6-15e0c2402fb5 base tensorflow\_1.15-py3.6 2b73a275-7cbf-420b-a912-eae7f436e0bc base kernel-spark3.3-py3.9 2b7961e2-e3b1-5a8c-a491-482c8368839a base pytorch\_1.2-py3.6 2c8ef57d-2687-4b7d-acce-01f94976dac1 base spark-mllib\_2.3 2e51f700-bca0-4b0d-88dc-5c6791338875 base pytorch-onnx\_1.1-py3.6-edt 32983cea-3f32-4400-8965-dde874a8d67e base

spark-mllib\_3.0-py37 36507ebe-8770-55ba-ab2a-eafe787600e9 base spark-mllib\_2.4 390d21f8-e58b-4fac-9c55-d7ceda621326 base autoai-ts\_rt22.2-py3.10 396b2e83-0953-5b86-9a55-7ce1628a406f base xgboost\_0.82-py3.6 39e31acd-5f30-41dc-ae44-60233c80306e base pytorch-onnx\_1.2-py3.6-edt 40589d0e-7019-4e28-8daa-fb03b6f4fe12 base pytorch-onnx\_rt22.2-py3.10 40e73f55-783a-5535-b3fa-0c8b94291431 base default\_r36py38 41c247d3-45f8-5a71-b065-8580229facf0 base autoai-ts\_rt22.1-py3.9 4269d26e-07ba-5d40-8f66-2d495b0c71f7 base autoai-obm\_3.0 42b92e18-d9ab-567f-988a-4240ba1ed5f7 base pmml-3.0\_4.3 493bcb95-16f1-5bc5-bee8-81b8af80e9c7 base spark-mllib\_2.4-r\_3.6 49403dff-92e9-4c87-a3d7-a42d0021c095 base xgboost\_0.90-py3.6 4ff8d6c2-1343-4c18-85e1-689c965304d3 base pytorch-onnx\_1.1-py3.6 50f95b2a-bc16-43bb-bc94-b0bed208c60b base autoai-ts\_3.9-py3.8 52c57136-80fa-572e-8728-a5e7cbb42cde base spark-mllib\_2.4-scala\_2.11 55a70f99-7320-4be5-9fb9-9edb5a443af5 base spark-mllib\_3.0 5c1b0ca2-4977-5c2e-9439-ffd44ea8ffe9 base autoai-obm\_2.0 5c2e37fa-80b8-5e77-840f-d912469614ee base spss-modeler\_18.1 5c3cad7e-507f-4b2a-a9a3-ab53a21dee8b base cuda-py3.8 5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e base

autoai-kb\_3.1-py3.7 632d4b22-10aa-5180-88f0-f52dfb6444d7 base pytorch-onnx\_1.7-py3.8 634d3cdc-b562-5bf9-a2d4-ea90a478456b base

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Note: Only first 50 records were displayed. To display more use 'limit' paramete r.

software\_spec\_uid **=** client**.**software\_specifications**.**get\_uid\_by\_name("tensorflow\_rt22.1-py3.9") software\_spec\_uid

'acd9c798-6974-5d2f-a657-ce06e986df4d'

model\_details **=** client**.**repository**.**store\_model(model**=** "image-classification- model\_new.tgz",meta\_props**=**{ client**.**repository**.**ModelMetaNames**.**NAME:"CNN", client**.**repository**.**ModelMetaNames**.**TYPE:"tensorflow\_2.7",

client**.**repository**.**ModelMetaNames**.**SOFTWARE\_SPEC\_UID:software\_spec\_u id}

)

model\_id **=** client**.**repository**.**get\_model\_id(model\_details) model\_id

'177ade4a-b648-4ced-9c7c-0e962b9cee9b'

client**.**repository**.**download(model\_id, 'my\_model.tar.gz') Successfully saved model content to file: 'my\_model.tar.gz'

'/home/wsuser/work/my\_model.tar.gz'