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Real Time Communication through AI for Specially Abled\n","### Loading the Dataset & Image Data
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(495.2 MB)\n","\u001b[K |
kB/s s eta 0:00:01
                            | 40.0 MB 17.3 MB/s eta 0:00:27ta
0:00:01\n","\u001b[?25hRequirement already satisfied: protobuf>=3.9.2 in
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                                                | 1.3 MB 76.6 MB/s eta
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3.9/lib/python3.9/site-packages (from tensorflow==2.7.1) (3.3.0)\n","Requirement already satisfied:
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```

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(1.26.7)\n","Requirement already satisfied: oauthlib>=3.0.0 in /opt/conda/envs/Python-
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estimator, keras, tensorflow\n"," Attempting uninstall: tensorflow-estimator\n"," Found existing
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Successfully uninstalled tensorflow-estimator-2.9.0\n"," Attempting uninstall: keras\n"," Found
existing installation: keras 2.9.0\n"," Uninstalling keras-2.9.0:\n","
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```

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file: No such file or directory; LD_LIBRARY_PATH:
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Testing Datagen\n","test_datagen =
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@hidden_cell\n","# The following code accesses a file in your IBM Cloud Object Storage. It includes
your credentials.\n","# You might want to remove those credentials before you share the
notebook.\n","client_9e2ebbcc4db04f3fb5d87e8fa4800e36 =
ibm boto3.client(service name='s3',\n","
ibm_api_key_id='GN91c7sTtlR1DYfMzZqIUwGSIkATCCriPItR-s81P82-',\n","
ibm_auth_endpoint=\"https://iam.cloud.ibm.com/oidc/token\",\n","
config=Config(signature_version='oauth'),\n"," endpoint_url='https://s3.private.us.cloud-object-
storage.appdomain.cloud')\n","\n","streaming_body_1 =
client_9e2ebbcc4db04f3fb5d87e8fa4800e36.get_object(Bucket='communicationmodeltraining-
donotdelete-pr-xpzs67frbbb7s3', Key='Communication Dataset.zip')['Body']\n","\n","# Your data file
was loaded into a botocore.response.StreamingBody object.\n","# Please read the documentation of
ibm_boto3 and pandas to learn more about the possibilities to load the data.\n","# ibm_boto3
documentation: https://ibm.github.io/ibm-cos-sdk-python/\n","# pandas documentation:
http://pandas.pydata.org/\n"]},{"cell_type":"code","execution_count":20,"id":"f280560f","metadata
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zipfile\n","unzip = zipfile.ZipFile(BytesIO(streaming_body_1.read()), 'r')\n","file_paths =
unzip.namelist()\n","for path in file_paths:\n","
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classes.\n"]}],"source":["# Training
Dataset\n","x_train=train_datagen.flow_from_directory(r'/home/wsuser/work/Communication_Dat
aset/training set',target size=(64,64), class mode='categorical',batch size=900)\n","# Testing
Dataset\n","x_test=test_datagen.flow_from_directory(r'/home/wsuser/work/Communication_Data
```

set/test_set',target_size=(64,64),

```
class_mode='categorical',batch_size=900)"]},{"cell_type":"code","execution_count":26,"id":"95d515
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test: \", len(x_test))"]},{"cell_type":"code","execution_count":27,"id":"0c7bd1a5-f00c-4e38-8b2b-
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Convolution2D, MaxPooling2D, Flatten, Dense"]}, {"cell_type": "code", "execution_count":29, "id": "c153"
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file or directory; LD_LIBRARY_PATH: /opt/ibm/dsdriver/lib:/opt/oracle/lib:/opt/conda/envs/Python-
3.9/lib/python3.9/site-packages/tensorflow\n","2022-05-28 11:09:39.431118: W
tensorflow/stream_executor/cuda/cuda_driver.cc:269] failed call to culnit: UNKNOWN ERROR
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dd(MaxPooling2D(pool_size=(2,2)))\n","model.add(Flatten())\n","\n","# Adding Hidden
Layers \n", "model. add (Dense (300, activation = 'relu')) \n", "model. add (Dense (150, activation = 'relu')) \n", "mod
"\n","# Adding Output
Layer\n","model.add(Dense(9,activation='softmax'))"]},{"cell_type":"code","execution_count":31,"id
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be removed in a future version. Please use `Model.fit`, which supports generators.\n","
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tion_steps=len(x_test))\n"]},("name":"stdout","output_type":"stream","text":["Epoch
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128s 4s/step - loss: 1.5307 - accuracy: 0.4587 - val_loss: 1.3421 - val_accuracy: 0.5421\n","Epoch
0.5461 - val_loss: 1.0878 - val_accuracy: 0.6286\n","Epoch 5/10\n","30/30
```

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128s 4s/step - loss: 0.9280 - accuracy: 0.6797 - val loss: 0.7627 - val accuracy: 0.7371\n","Epoch
7/10\n","30/30 [==============] - 126s 4s/step - loss: 0.8069 - accuracy:
0.7210 - val_loss: 0.6570 - val_accuracy: 0.7660\n","Epoch 8/10\n","30/30
[==============] - 126s 4s/step - loss: 0.7195 - accuracy: 0.7487 - val loss:
130s 4s/step - loss: 0.6222 - accuracy: 0.7873 - val loss: 0.5084 - val accuracy: 0.8281\n","Epoch
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0.8154"]},{"cell_type":"code","execution_count":34,"id":"99428b29","metadata":{},"outputs":[{"na
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wscommon 111324760 May 28 11:33 IBM_Communication_Model.h5\n","-rw-rw---- 1 wsuser
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0:00:01\n","\u001b[?25hRequirement already satisfied: tabulate in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (0.8.9)\n","Requirement
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already satisfied: lomond in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-
machine-learning-client) (0.3.3)\n","Requirement already satisfied: pandas in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client)
(1.3.4)\n","Requirement already satisfied: requests in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (2.26.0)\n","Requirement
already satisfied: ibm-cos-sdk in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from
watson-machine-learning-client) (2.11.0)\n","Requirement already satisfied: tqdm in
```

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/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client)
(4.62.3)\n","Requirement already satisfied: botocore<1.22.0,>=1.21.21 in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-client)
(1.21.41)\n","Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /opt/conda/envs/Python-
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(0.10.0)\n","Requirement already satisfied: s3transfer<0.6.0,>=0.5.0 in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-client)
(0.5.0)\n","Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from botocore<1.22.0,>=1.21.21->boto3->watson-machine-
learning-client) (2.8.2)\n","Requirement already satisfied: six>=1.5 in /opt/conda/envs/Python-
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>boto3->watson-machine-learning-client) (1.15.0)\n","Requirement already satisfied: ibm-cos-sdk-
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core==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk-
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