Qualcomm Developer Network

Neural Processing SDK for AI

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| **Project Title**\* | **Neural Processing SDK for AI** | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | Result:  2020-09-23 16-16-18 的屏幕截图 | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | Show the ability of training modle | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | Model training is performed on popular deep learning frameworks (SNPE supports Caffe, Caffe2, ONNX, and TensorFlow models.) After the training is completed, the trained model is converted into a DLC file, which can be loaded into the SNPE runtime.  Users can use one of the Snapdragon accelerated computing cores to use this DLC file to perform the forward inference process. | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| Neural Processing SDK for AI | <https://developer.qualcomm.com/software/qualcomm-neural-processing-sdk> |
| Caffe | https://github.com/BVLC/caffe.git |
| TensorFlow | https://storage.googleapis.com/tensorflow/linux/cpu/tensorflow-1.0.0-cp27-none-linux\_x86\_64.whl |
| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* | Description | Link |
| [Source Code](https://github.com/canyudeguang/Home_Automation) | <https://github.com/ThunderSoft-XA/Neural-Processing-SDK-for-AI> |
| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* | Resource Title | Link or File Name (and provide file) |
| Video Links | https://pan.baidu.com/s/1kn7AODSc2-aIc6C5RgjFJw uqsu |

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| **Build / Assembly Instructions** | Parts used Below are the items used in this project.   |  |  | | --- | --- | | **Phone**  **/home/zx/Pictures/SDM865.jpegSDM865** | **Snapdragon Profiler**  Snap |   [alt tag: “**Parts used for developing.** ”]   1. Ubuntu device with Snapdragon SDM865 processors installed the snpe、caffe、tensorflow. Then run the neural network. 2. PC with Ubuntu 18.04. 3. Type-C data cable. 4. Neural Process SDK for AI. 5. Caffe and TensorFlow.   Deploying the project   1. Download Neural Process SDK for AI from <https://developer.qualcomm.com/software/qualcomm-neural-processing-sdk>, and install it to PC. 2. Download caffe and build it . 3. Download TensorFLow and build it. 4. Configure the relevant environment. 5. SDK verification environment is correct. 6. Compile the dlc training model file. 7. Then you can see the time taken by the neural network model to classify through the command. 8. If no problem, upload code to Github. | |
| **Usage Instructions** | 1. Install and configure Caffe TensorFlow 2. Install and configure the Python environment 3. Install and configure snpe and verify that the environment is ok   Source ~/snpe-sdk/bin/dependencies.sh  Source ~/snpe-sdk/bin/check\_python\_depends.sh   1. setup SDK   Sourcu ~/snpe-sdk/bin/envsetup.sh -c ~/caffe  Source ~/snpe-sdk/bin/envsetup.sh -t ~/tensorflow #optional for this guide   1. Download the MLModes and convert them to .DLC   Python ~/snpe-sdk/models/alexnet/scripts/setup\_alexnet.py -a ./temp-assets-cache-d  Python ~/snpe-sdk/models/inception\_v3/scripts/setup\_inceptionv3.py -a ./temp-assets-cache-d #optional   1. Running Nets:   Cd ~/snpe-sdk/models/alexnet/  Python scripts/show\_alexnet\_classifications.py -i data/cropped/raw\_list.txt -o output/ -l data/lisvrc\_2012\_labels.txt  Cd ~/snpe-sdk/models/inception\_v3/ #optional  Python scripts/show\_inceptionv3\_classifications.py -i data/cropped/raw\_list.txt -o output/ -l data/imagenet\_slim\_labels.txt  The following is the final result:  /home/zx/Downloads/snpe-1.29.0.456/models/alexnet/data/cropped/plastic\_cup.raw 0.720697 647 measuring cup  /home/zx/Downloads/snpe-1.29.0.456/models/alexnet/data/cropped/chairs.raw 0.363968 831 studio couch, day bed  /home/zx/Downloads/snpe-1.29.0.456/models/alexnet/data/cropped/trash\_bin.raw 0.950433 412 ashcan, trash can, garbage can, wastebin, ash bin, ash-bin, ashbin, dustbin, trash barrel, trash bin  /home/zx/Downloads/snpe-1.29.0.456/models/alexnet/data/cropped/handicap\_sign.raw 0.109255 919 street sign  /home/zx/Downloads/snpe-1.29.0.456/models/alexnet/data/cropped/notice\_sign.raw 0.666179 458 brass, memorial tablet, plaque  /home/zx/Downloads/snpe-1.29.0.456/models/inception\_v3/data/cropped/plastic\_cup.raw 0.720697 647 maze  /home/zx/Downloads/snpe-1.29.0.456/models/inception\_v3/data/cropped/chairs.raw 0.363968 831 stretcher  /home/zx/Downloads/snpe-1.29.0.456/models/inception\_v3/data/cropped/trash\_bin.raw 0.950433 412 apron  /home/zx/Downloads/snpe-1.29.0.456/models/inception\_v3/data/cropped/handicap\_sign.raw 0.109255 919 crossword puzzle  /home/zx/Downloads/snpe-1.29.0.456/models/inception\_v3/data/cropped/notice\_sign.raw 0.666179 458 bow tie | |
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Filters and Tags for QDN projects page

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| **Platform/Hardware** | CSR 101x/102x Bluetooth  DragonBoard 410c  mangOH Red/Yellow | MDM920x LTE for IoT  QCA-402x WiFi/BLE/Zigbee  ☐     Qualcomm Robotics RBx Dev Kit |
| **Software Tools** | 3D Audio Plugin for Unity  Adreno GPU SDK  Hexagon DSP SDK | Neural Processing SDK for AI  Snapdragon Profiler |
| **Operating System** | Android  Linux  ThreadX RTOS | Ubuntu Core  Windows 10 IoT Core |
| **Cloud Services/Platform** | Sierra Wireless AirVantage  Gizwits Cloud Platform  AT&T M2X  IBM Bluemix | IBM Watson IoT  Microsoft Azure IoT  Amazon AWS IoT |
| **Skill Level Required** | Advanced  Beginner  Intermediate |  |
| **Areas of Focus** | 3D Printing & Modeling  Alexa Voice Service  Artificial Intelligence  Bluetooth  Computer Vision  Digital Signage  Education  Embedded  Gaming | Healthcare  IoT  Robotics  Security  Sensors  Smart Cities  Smart Home  Toys |

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