Qualcomm Developer Project Image Embedder demo

Project Submission

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| **Project Title**\* | **Image Embedder** | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | **Qualcomm® CM2290**  IMG_256  [Alt tag: “Image Embedder-demo using The Qualcomm® CM2290 SOC Open Kit”]  **Type-c usb line**   |  | | --- | | **typc** |   [Alt tag: “using the USB line to develop on Qualcomm® CM2290 SOC Open Kit” ]  **Charger**  charger  [Alt tag: “using round-hole charger to power Qualcomm® CM2290 SOC Open Kit”] | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | Image embedders allow embedding images into a high-dimensional feature vector representing the semantic meaning of an image, which can then be compared with the feature vector of other images to evaluate their semantic similarity.  As opposed to [image search](https://tensorflow.google.cn/lite/inference_with_metadata/task_library/image_searcher), the image embedder allows computing the similarity between images on-the-fly instead of searching through a predefined index built from a corpus of images.  Key features of the ImageEmbedder  Input image processing, including rotation, resizing, and color space conversion.  Region of interest of the input image.  Built-in utility function to compute the cosine similarity between feature vectors. | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | CM2290 development board can be used for Image embedder , the model can be used for embedding images into a high-dimensional feature vector representing the semantic meaning of an image, which can then be compared with the feature vector of other images to evaluate their semantic similarity. | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| Qualcomm® CM2290 SOC Open Kit | https://www.thundercomm.com/zh/product/cm2290-c2290-development-kit |
| USB Line | https://item.jd.com/40759941966.html |
| Charger |  |
| OVA3 camera |  |
| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* | Description | Link |
| Source Code | https://github.com/ThunderSoft-XA/CM2290-Image Embedder-demo |
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| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* | Resource Title | Link or File Name (and provide file) |
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| **Build / Assembly Instructions** | Sample outline:   1. Open Android Studio. From the Welcome screen, select Open an existing Android Studio project. 2. From the Open File or Project window that appears, navigate to and select the text\_embedder/android directory. Click OK. You may be asked if you trust the project. Select Trust. 3. If it asks you to do a Gradle Sync, click OK. 4. With your Android device connected to your computer and developer mode enabled, click on the green Run arrow in Android Studio. | |
|  | Sample outline:   1. How does it work?   Image embedders allow embedding images into a high-dimensional feature vector representing the semantic meaning of an image, which can then be compared with the feature vector of other images to evaluate their semantic similarity.  Cosine similarity between normalized feature vectors return a score between -1 and 1. Higher is better, i.e. a cosine similarity of 1 means the two vectors are identical. | |
| **Usage Instructions** | The Demo running results are as follows：  final result:  Screenshot_20230608_141505Screenshot_20230608_141707 | |
| **Contributor(s) Info**  *Feel free to include headshots!* | Name | Title  Company |
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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  √ Qualcomm CM2290 | 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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