Huawei HiLens

Best Practices

 Issue
 01

 Date
 2025-02-24





HUAWEI TECHNOLOGIES CO., LTD.

Copyright © Huawei Technologies Co., Ltd. 2025. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions

NUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd. All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

- Address: Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China Website: https://www.huawei.com
- Email: <u>support@huawei.com</u>

Security Declaration

Vulnerability

Huawei's regulations on product vulnerability management are subject to the *Vul. Response Process.* For details about this process, visit the following web page:

https://www.huawei.com/en/psirt/vul-response-process

For vulnerability information, enterprise customers can visit the following web page: <u>https://securitybulletin.huawei.com/enterprise/en/security-advisory</u>

Contents

| 1 Overview | 1 |
|---|----|
| 2 Developing a Face Detection Skill | 2 |
| 3 Developing a Safety Helmet Detection Skill (with an External IPC) | 12 |
| 4 Distributing a Skill to a Product (Manufacturers) | |



This document includes a number of best practices in terms of how you could use HUAWEI HiLens to develop and deploy AI capabilities onto end-user devices like smart cameras.

- **Developing a Face Detection Skill**: This chapter describes how to use the model import and skill development functions of Huawei HiLens to create a new face detection skill based on the Caffe model.
- **Developing a Safety Helmet Detection Skill (with an External IPC)**: This chapter describes how to connect an external Internet protocol camera (IPC) to a HiLens Kit device, run the safety helmet detection skill on the HiLens Kit device, and use the POST method to output the results.
- **Distributing a Skill to a Product (Manufacturers)**: This chapter describes how to manage devices, subscribe to skills, and distribute licenses to devices through the Huawei HiLens management console, enabling cameras with HiSilicon Hi35*xx* series chips with AI capabilities.

2 Developing a Face Detection Skill

Huawei HiLens allows developers to import (convert) models and develop skills. You can develop models, import them to Huawei HiLens, compile logic code based on service requirements, and create skills based on your custom algorithm models and logic code.

This chapter provides an example face detection skill to describe the overall process of creating a skill from importing a model to viewing the skill effect, helping you quickly get familiar with skill creation on Huawei HiLens.

Before you start, make the preparations described in **Preparations**. To develop a skill, perform the following steps:

- Step 1: Prepare Data
- Step 2: Import (Convert) the Model
- Step 3: Create the Skill
- Step 4: (Optional) Release the Skill
- Step 5: Install the Skill
- Step 6: Start the Skill

Preparations

- Make sure your HUAWEI CLOUD account is not in arrears or frozen.
- Purchase a HiLens Kit device and prepare the network cable, computer, router, HDMI cable, and display.
- Register the HiLens Kit device with the Huawei HiLens management console. For details, see **Registering HiLens Kit Devices** in the *Huawei HiLens User Guide*.
- Create a bucket and folders in OBS for storing the sample model data. The OBS bucket is named **hilens-test1**, and the folders are **face-detection** and **face-detection-output**.

For details about how to create an OBS bucket and folder, see **Creating a Bucket** and **Creating a Folder**. For successful model data access, ensure that the created OBS bucket and Huawei HiLens are in the same region.

Operations that occupy OBS resources are billed. For details about the billing rules, see **OBS Pricing Details**.

Step 1: Prepare Data

Huawei HiLens provides a sample model named **face_detection_model** in the public OBS bucket. This chapter uses this model to develop a skill. Perform the following operations to upload the model file to the OBS directory **hilens-test1/face-detection** created in preparations.

Step 1 Download the sample model face_detection_model to the local host. Verify the signature in the directory where the file is stored (Git is recommended for Windows). After the verification is successful, OK is returned. Run the following command:

echo ec5160c48f5ba6025dac696d7ff8b827f1902f6aa712b6969609cb5f290d149a face_detection_model.zip | sha256sum -c

- **Step 2** Decompress the **face_detection_model** package. For example, decompress the package to the **face_detection_model** folder on the local PC. The folder contains two subfolders: **caffemodel+transfer** and **logic_code**.
- Step 3 Upload the three files in the caffemodel+transfer folder to the hilens-test1/facedetection OBS directory. For details, see Uploading a File. The three files are Caffe model files .caffemodel and .prototxt, and configuration file .cfg.

----End

Step 2: Import (Convert) the Model

The imported models can be in **.om**, **.pb**, or **.caffemodel** format. Only models in **.om** format can run on HiLens Kit devices. Models in **.pb** or **.caffemodel** format can be automatically converted into the **.om** format by Huawei HiLens.

- **Step 1** Log in to the Huawei HiLens management console. In the navigation pane, choose **Skill Development > Models**. The **Models** page is displayed.
- Step 2 On the Models page, click Import (Convert) Model in the upper right corner.
- **Step 3** On the **Import Model** page, set parameters according to **Table 2-1**. After confirming the information, click **OK**.

| * Name (?) | face-detection-demo | | |
|--------------------|---|--------------------------------|-------------------|
| * Version | 1.0.0 | | |
| * Description | face-detection | | |
| | | | |
| * Model Source | Import From OBS Import From Model | Arts | |
| | Model Address Click the button on the right to se | elect the model address. | |
| * Туре | TF-FrozenGraph-To-Ascend-HiLens | TF-SavedModel-To-Ascend-HiLens | Caffe to Ascend |
| | 2.2.200.011 Studio C30B902 | 2.2.200.011 Studio C30B902 | 2.2.0.031 C30B893 |
| | TF-FrozenGraph-To-Ascend | TF-SavedModel-To-Ascend | |
| | 2.2.0.031 C30B893 | 2.2.0.031 C30B893 | |
| Import From ② | | ٦ | |
| * Export To 🕜 | Select the path to which the model is exported. | | |
| > Advanced Options | | | |

Figure 2-1 Importing a model

| Parameter | Recommended Configuration |
|------------------|---|
| Name | Enter face-detection-demo . |
| Version | Enter 1.0.0 . |
| Description | Enter the description of the model to be imported. |
| Model Source | Click Import From OBS . In the Model Address area, click . Go to the /hilens-test1/face-detection/ directory where the model is uploaded, select the face_detection.caffemodel file, and click OK . See Figure 2-2 for more information. |
| Туре | Select Caffe to Ascend. |
| Import From | After you select a model source, the path is automatically entered. |
| Export To | Click ^{Click} and select the /hilens-test1/face-detection- output/ directory. |
| Advanced Options | Set the input tensor shape and output node. In this example, retain the default values. |

 Table 2-1 Parameters for importing a model

Figure 2-2 Model source OBS Address

If no bucket or folder is available, click here to create one.

| OBS > hilens-test1 > face-detection |
|-------------------------------------|
| 🗲 Return |
| 🗗 aipp.cfg |
| 🖸 face_detecton.caffemodel |
| 🗇 om. prototxt |
| |
| |
| |
| |
| |
| |
| |
| OK Cancel |

| • | , , |
|-------------------|---|
| *Name 🕐 | face-detection-demo |
| * Version | 1.0.0 |
| * Description | face-detection |
| | 14/100 |
| * Model Source | Import From DBS Import From ModelArts * Model Address https://hilenstest.obs.cn-north-1.myhuaweicloud.com/face- Import From DBS |
| * Туре | Tensorflow FrozenGraph \$\$ Ascend Tensorflow SavedModel \$\$ Ascend Caffe to Ascend O Ascend TensorFlow Saved_model Ascend Caffe to Ascend O |
| * Import From (?) | https://hilenstest.obs.on-north-1.myhuaweicloud.com/face-detection/ |
| * Export To | https://hilenstest.obs.on-north-1.myhuaweicloud.com/face-detection-output// |
| | OK Cancel |

Figure 2-3 Importing a model

After the model is imported, the **Models** page is displayed. You can view the model import (conversion) status in the list, including **Converting**, **Conversion failed**, **Conversion succeeded**, **Import failed**, and **Import succeeded**. When the status changes to **Import succeeded**, you can create skills on the Huawei HiLens management console.

----End

Step 3: Create the Skill

- Step 1 In the navigation pane of the Huawei HiLens management console, choose Skill Development > Skills.
- **Step 2** On the **Basic Skills** tab, click **Create Skill** in the upper right corner. The **Create Skill** page is displayed.
- Step 3 On the Create Skill page, set Template to Create from scratch, and enter the basic information and skill content. In this example, you can skip (Optional) Runtime Configurations, (Optional) Hard Example Upload Settings, and (Optional) Elastic Skill Parameters.

Basic Information

Enter the basic information by referring to Table 2-2, as shown in Figure 2-4.

| Parameter | Recommended Configuration |
|-----------|--------------------------------------|
| Template | Select Create from scratch. |
| Name | Enter Face_Detection. |
| Version | Enter 1.0.0 . |
| Chip | Retain the default value Ascend 310. |

Table 2-2 Basic information

| Parameter | Recommended Configuration |
|----------------------|--|
| Verification Value | Set this parameter to test (the value of the init function parameter in the main.py file under the face_detection_model > logic_code folder downloaded in Step 1: Prepare Data). The verification value must be the same as the value of the init function parameter. |
| Application Scenario | Select Others and enter Face Detection in the text box. |
| lcon | Upload a skill icon. |
| OS Platform | Select Linux . |
| Description | Enter the description of the skill. |

Figure 2-4 Basic information

Basic Information

| Skill Templates | Create from Scrat | ch Select Ten | nplate | |
|-------------------------------|-------------------|----------------|--------|---------|
| * Name | Face_Detection | | | |
| * Skill Version | 1.0.0 | | | |
| * Chip 💿 | Ascend310 | • | | |
| * Skill Code Value 🗿 | test | | | |
| * Application Scenario | Others • | Face_Detection | | |
| Icon | + | | | |
| * OS Platform | Linux An | droid iOS | LiteOS | Windows |
| Description B I H 66 ⊞ ⊫ | ⁰ ⊠ (♥ □ | × | | |

Skill Content

Based on your model and logic code, fill in the skill content by referring to **Table 2-3**, as shown in **Figure 2-5**.

| Parameter | Recommended Configuration |
|----------------------|---|
| Skill Format | Select Skill package . |
| Runtime Language | Select Python3.7 . |
| Code Execution Entry | The default value is index.py . In this example, the code file name is main.py . Therefore, enter main.py . |
| Model | Click the plus sign (+). In the dialog box that is displayed, select the imported model face-detection-demo . |
| Code Entry Mode | Select Compile online and edit the code in the code editing box. Click and change the name of the default file index.py to main.py. Then, copy the code in the face_detection_model > logic_code > main.py file downloaded in Step 1: Prepare Data and paste it to the editing box of the main.py file. Choose File > Create Peer File, enter the file name |
| | postprocess.py , and click OK . Copy the code in the face_detection_model>logic_code>postprocess.py file downloaded in Step 1: Prepare Data and paste it to the editing box of the postprocess.py file. |

| Table 2-3 | 3 Skill | content | parameters |
|-----------|----------------|---------|------------|
|-----------|----------------|---------|------------|

Figure 2-5 Skill content

| Skill Content | | | |
|----------------------------|--------------------|------------------------|--------------------------|
| ★ Skill Format | Skill package | Container image | |
| * Runtime Language | Python3.7 C/ | C++ | |
| Function Execution Entry 🕜 | index.py | | |
| Model | | face-detection - 1.0.0 | Delete |
| * Code Entry Mode | Online Compilation | Upload From OB | S Select Container Image |

Step 4 After entering the basic information and skill content, view the parameter values on the right of the page. If a parameter is incorrectly set, a red cross is displayed on the right.

Confirm the information and click **OK**. The skill is successfully created.

Figure 2-6 Confirming the information and creating a skill

| Basic Inform | nation | \odot |
|--------------|--------|---------|
|--------------|--------|---------|

| eate from S |
|-------------|
| |
| ce_Detecti |
|).0 |
| cend310 |
| st |
| hers-Face |
| |
| iux |
| |
| |

Skill Content 📀

| * Skill Format | file |
|----------------|---------------|
| * Runtime La | Python3.7 |
| Function Ex | index.py |
| Model | [{"model_vers |
| Code Entry | Online Compil |

(Optional) Runtime Configuration 📀



----End

After the skill is created, you can choose **Skill Development** > **Skill Management** to release the skill (in the **Not Released** state) to the skill market. You can also deploy the skill on devices and view the skill usage effect.

After the skill is released, its status becomes **Reviewing**. Huawei HiLens personnel will complete the review within three working days. After passing the review, the skill is in the **Approved and released** state.

Step 4: (Optional) Release the Skill

- **Step 1** Log in to the Huawei HiLens console, choose **Skill Development > Skills** in the left navigation pane. The **Skills** page is displayed.
- **Step 2** Select the skill to be released and click **Release** in the **Operation** column.
- **Step 3** In the displayed **Release Skill** dialog box, set the release information based on **Table 2-4**, and click **OK**.

| Parameter | Description |
|--------------------------|--|
| Publish | Service to which the skill is to be released. Select HiLens Skill Market in this example. |
| Billing Policy | Billing policy for releasing the skill to the skill market. The value can be Free or Charged . |
| Billed By | Billing mode after the skill is released. If you select the Free billing policy, only One-off can be selected. If you select the Charged billing policy, Yearly/Monthly and One-off can be selected. |
| Measurement Unit | Specifications that can be used on the device. The value can be Number of channels or QPS . If you select Number of channels , one license can be installed on a device to use one channel of video. |
| Specification Limitation | Maximum number of video channels that the skill can process on a device or the maximum number of concurrent video channels. |
| Privacy Policy | User privacy policies involved in this skill. |

 Table 2-4 Parameters for releasing skills

After the release application is submitted, it will be sent to the Huawei HiLens background for review. The review will be completed within three working days.

----End

Step 5: Install the Skill

- Step 1 Choose Skill Development > Skills, select the developed skill, and click Install in the Operation column.
- **Step 2** Select a registered online device and click **Install**. After the installation is successful, click **OK**. See **Figure 2-7**.

During the installation, the Huawei HiLens console will deliver the skill package to the device. It takes some time to deliver the skill package. You can view the skill installation progress in the progress bar. After the delivery is complete, the progress bar displays **Installation succeeded**. See **Figure 2-7**.

Figure 2-7 Successful installation

| | Device Name | Device status | Resource co | Firmware Name | Firmware | Progress |
|-----|------------------|----------------------------|--|---------------------|----------|-----------------|
| 0 | ap_TEST | Online | Number of c qps | HiLens_Device_Agent | 1.0.7 | Deployment succ |
| 5 🔻 | Total Records: 1 | < 1 > | | | | |
| | | | ОК | Cancel | | |

After the installation is successful, you can start the skill to view the skill output data.

----End

Step 6: Start the Skill

- **Step 1** Use an HDMI video cable to connect the HiLens Kit video output port to the display.
- **Step 2** In the navigation pane, choose **Device Management > Devices**. The **Devices** page is displayed.
- Step 3 Click the registered device. The Skill Management tab page is displayed. The status of the installed face detection skill is Stopped. Click Start in the Operation column and click OK to start the skill on the device.

The skill status changes to **Running** after a short period of time, indicating that the skill is successfully running on the device.

 Table 2-5 lists the statuses of installed skills.

Figure 2-8 Viewing skill status

 Bill Name (mjildr)
 Bill Name (shinese)
 Version
 Status
 Supported Diametris
 License Validity Period
 Installation Time
 Operation

 10.2
 0
 Running
 8
 MOry
 202049313126177
 Stat/ Stop Unintial Mory +

| Table 2-5 Skill i | installation statuses |
|-------------------|-----------------------|
|-------------------|-----------------------|

| Status | Description |
|---------|---|
| Stopped | The skill stops running on the device. |
| Running | The skill is successfully installed on the device and is running. |

When the skill is in the **Running** status, you can view the video data output by the skill on the display.



Figure 2-9 Skill effect

----End

3 Developing a Safety Helmet Detection Skill (with an External IPC)

A HiLens Kit device has a built-in camera. It can also connect to external Internet protocol cameras (IPCs) with a resolution of 1080p or lower.

This chapter uses the safety helmet detection skill template on the Huawei HiLens console as an example to describe how to connect an IPC to a HiLens Kit device, run the safety helmet detection skill on the HiLens Kit device, and use the POST method to output the results.

Before you start, make the preparations described in **Preparations**. To develop a skill, perform the following steps:

- Step 1: Connect an External IPC
- Step 2: Create a Skill
- Step 3: Install the Skill
- Step 4: Configure Cameras
- Step 5: View the Skill Output Data

Preparations

- Make sure your HUAWEI CLOUD account is not in arrears or frozen.
- Purchase a HiLens Kit device and prepare the network cable, computer (PC), router, HDMI cable, and display.
- Register the HiLens Kit device with the Huawei HiLens console. For details, see **Registering HiLens Kit Devices** in the *Huawei HiLens User Guide*.
- Ensure that Python has been installed on the local PC.

Step 1: Connect an External IPC

Ensure that the IPC, local PC, and HiLens Kit device are in the same network segment. That is, the network segment configured for the IPC is the network segment where the HiLens Kit device is located in the networking. For details about the networking configuration, see User Guide > Wireless Network Configuration and User Guide > Wired Network Configuration.

- **Step 1** Use a network cable to connect the IPC to the PC, and connect the PC to a wireless network.
- **Step 2** Change the IP address of your PC so that it is in the same network segment as that of the IPC.
 - 1. Choose **Network and Sharing Center > Change adapter settings** on the PC.
 - 2. In the **Network Connections** window, right-click the Ethernet connection and choose **Properties**.
 - 3. Double-click **Internet Protocol Version 4** and select **Use the following IP address**. Then, enter an IP address that is in the **same network segment** as the IPC and click the **Subnet mask** text box to automatically generate a subnet mask. Click **OK**.

| Networking | [Terring] | | | | |
|---|--|----------------------------------|-----------------|-------------------|--------------------|
| Connect using: | You can get IP settings assigned at this capability. Otherwise, you nee for the appropriate IP settings. | utomatically if d to ask your | your n netwo | etwork rk admi | suppor nistrato |
| Configure This connection uses the following items: | Obtain an IP address automat Ottain an IP address automat | tcally | | | |
| Cient for Microsoft Networks | IP address: | | 14 | | 1 |
| File and Printer Sharing for Microsoft Networks | Subnet mask: | | | | |
| ✓ | Default gateway: | | ÷. | а. | Q. |
| | Obtain DNS server address as When the following DNS server | utomatically addresses: | | | 5 |
| Instal | Preferred DNS server: | | | | |
| Install. Uninstal Properties | Preferred DNS server: Alternate DNS server: | - | | | |
| InstallUninstall Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks. | Preferred DNS server: Alternate DNS server: Valdate settings upon exit | | 14 | Adv | anced. |

Figure 3-1 Changing the IP address of an IPC

For example, if the default IP address of the IPC is **192.168.1.1** and the default gateway is **255.255.255.0**, the IP address in the same network segment as that of the IPC is **192.168.1.X**, where X is an integer from 2 to 255 except 111. In this case, you can change the local IP address of the PC to **192.168.1.55**.

- **Step 3** Open the **cmd** window and enter the **ipconfig** command to check the IPv4 address, subnet mask, and default gateway of the wireless network connected to the PC. The IPv4 address is the network segment of the router connected to the PC.
- **Step 4** Open the browser, enter the IP address of the IPC, and change the IP address to be in the same network segment as the router.

For example, assume that the IP address of the IPC is **192.168.1.1**, and the IPv4 address of the wireless network connected to the PC queried in the previous step is **192.168.137.101**. Enter **192.168.1.1** in the address box of the browser and change the IP address of the IPC to **192.168.137.7** in the basic settings page so that it is in the same network segment **192.168.137.X** as the IP address of the wireless network connected to the PC.

Step 5 Disconnect the network cable between the IPC and the PC in step 1, use network cables to connect the IPC to the router and the HiLens Kit device to the PC, as shown in Figure 3-2.

Figure 3-2 Connection with an external IPC



----End

Step 2: Create a Skill

- Step 1 Log in to the Huawei HiLens console (basic edition), and choose Skill Development > Skills.
- Step 2 On the Basic Skills tab, click Create Skill in the upper right corner. The Create Skill page is displayed.
- **Step 3** Click **Select Template** for **Skill Templates**. The **Select Skill Template** dialog box is displayed.
- Step 4 Select the Safety Helmet Detection template and click OK.

The area for editing the skill content on the **Create Skill** page is displayed. The default configuration of the selected template is automatically loaded. You can view the related information on the right pane of the page.

- **Step 5** Specify **Name**, **Skill Version**, and **Application Scenario** based on User Guide > Create a Skill.
- **Step 6** Confirm the information, and click **OK**.

----End

Step 3: Install the Skill

- **Step 1** Log in to the Huawei HiLens console, choose **Skill Development > Skills** in the left navigation pane. The **Skills** page is displayed.
- **Step 2** Select the skill created in **Create a Skill** and click **Install** in the **Operation** column.
- **Step 3** In the dialog box that is displayed, select the device to which the skill is to be installed and click **Install**.

When the progress bar displays a message indicating that the installation is successful, the skill is successfully installed on the HiLens Kit device.

----End

Step 4: Configure Cameras

Step 1 In the navigation pane, choose **Device Management > HiLens Kit** and select the card of the device where the skill is installed.

The device details page is displayed.

Step 2 On the device details page, click **Camera Management**.

The **Camera Management** tab page is displayed.

Step 3 Click **Add Camera** and enter information about the external IPC according to **Table 3-1**.

| Parameter | Description | | | |
|---|---|--|--|--|
| Name Name of a camera, which is used for identification. T parameter is user-defined. | | | | |
| User Name | Username for logging in to the IPC. You can obtain it from the camera's user manual. | | | |
| Password | Password for logging in to the IPC. | | | |
| Protocol | Protocol used by the camera to transmit videos. The default value is rtsp and cannot be changed. | | | |
| Path | URL for accessing videos shot by the camera, for example, 192.168.0.1/root . Obtain the value from the camera's user manual (set it to the path provided by the IPC vendor). | | | |

Table 3-1 Camera configurations

- **Step 4** After entering and confirming the information, click **OK** to add the camera and deliver the configurations to the device. A row of camera information exists on the **Camera Management** page.
- **Step 5** On the device details page, click **Manage Skill** to switch to the **Manage Skill** tab page.
- **Step 6** Select the skill created in **Create a Skill** and click **Runtime Configuration** in the **Operation** column.
- **Step 7** Set runtime configuration parameters according to **Table 3-2**, and click **Execute Configuration**.

| Parameter | Description |
|-------------|---|
| server_url | Server IP address used to receive the POST data. You can run the config command in the cmd command-line interface (CLI) to query the address, which is IPv4 address + port of the wireless network connected to the PC in Step 1: Connect an External IPC . |
| | For example, if the IPv4 address of the PC wireless network is 192.168.137.101 , enter http://192.168.137.101:8080 here. |
| IPC_address | Address of the IPC. In this example, enter the Name of the added camera. For details, see Table 3-1 . |

Table 3-2 Runtime configuration parameters

----End

Step 5: View the Skill Output Data

If Python is not installed on the local PC, install Python on the local PC.

1. Enter **cmd** to open the CLI and run the **pip install flask** command to install the flash library of Python on the local PC.

Figure 3-3 Installing flask



- Log in to the Huawei HiLens console. In the navigation pane, choose Skill Development > Skill Templates.
- 3. On the **Skill Templates > All** page, enter "safety helmet detection" in the search box and click the card of the **Safety Helmet Detection** template.
- 4. On the details page of the **Safety Helmet Detection** template, click **Download Template**, save the template to the local PC, and decompress it.
- 5. Open the **cmd** CLI, go to the **../safety helmet detection template/safety helmet detection template/server.py** directory of the **server.py** file in the skill template, and run **python server.py**.
- 6. On the **Manage Skill** tab page of the device details page, select the skill created in **Create a Skill** and click **Start** in the **Operation** column.

After the skill is started, its status changes to **Running**.

7. View the skill data output by POST.

Method 1: In the CLI that runs **python server.py** in step 4, you can view the box information output by POST.

Method 2: In the **../safety helmet detection template/safety helmet detection template** directory where the **server.py** file resides in the downloaded **Safety Helmet Detection** template, you can view the images of faces not wearing safety helmets.

Figure 3-4 Skill effect



4 Distributing a Skill to a Product (Manufacturers)

This section describes how manufacturers of camera devices running HiSilicon Hi35*xx* series chips manage products, purchase skills, and bind device licenses to product skills on the Huawei HiLens console to enable the devices with AI capabilities.

This chapter describes how to purchase a skill oriented to HiSilicon Hi35*xx* series chips to demonstrate the entire process from product creation to skill use. Free test skills are available in the skill market for trial use, but we do not guarantee their commercial precision.

Before you start, carefully complete the preparations described in **Preparations**.

- Step 1: Create a Product
- Step 2: Purchase a Skill
- Step 3: Use the Skill

Preparations

Register a Huawei Cloud account. Before using Huawei HiLens, check the account status, which cannot be in arrears or frozen.

Step 1: Create a Product

- Step 1 Log in to the Huawei HiLens console. In the left navigation pane, choose Device Management > Products. The Products page is displayed.
- **Step 2** Click **Create Product** in the upper right corner and set product parameters, as shown in **Table 4-1**.

Figure 4-1 Creating a product Name

| Name | test | | | |
|---------------|-------|--------|---|--|
| * Platform ? | Linux | | • | |
| * Chip 🕐 | Arm | | • | |
| * Description | test | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | ОК | Cancel | | |

Table 4-1 Product parameters

| Parameter | Description |
|-------------|--|
| Name | Product name. |
| | Enter 3 to 60 characters. The name must start with a Chinese character or letter and end with a Chinese character, letter, or digit. Only Chinese characters, letters, digits, underscores (_), and hyphens (-) are allowed. |
| Platform | Device OS type. |
| | Android, Linux, iOS, LiteOS, and Windows are supported. |
| Chip | Device chip model. |
| | HiSilicon Hi35 <i>xx</i> series chips, including 3516CV500 and 3519AV100 |
| Description | Product description. |
| | Enter 1 to 512 characters. Special characters #~^\$%\'&*<>(){}[] \\/ are not allowed. |

- **Step 3** Confirm the product information and click **OK**. After the product is created, the **Product Management** page is automatically displayed.
- **Step 4** Select the new product and click **Download License** in the **Operation** column to download the license file.

The license contains the identity information of the product, which is used for registration verification with the skill SDK.

----End

Step 2: Purchase a Skill

You can purchase required skills from the skill market of Huawei HiLens based on your service requirements to develop devices running HiSilicon Hi35*xx* series chips. The skills can be used for Hi3516EV200, Hi3516CV500, Hi3519AV100, Hi3519V101, Hi3516DV300, and Arm chips..

This example describes how to purchase the free **Human_Face_Detection_Offline_3516EV200_HiLinux** skill, which is used to develop devices running HiSilicon Hi35*xx* series chips.

- Step 1 Log in to the Huawei HiLens console. In the navigation pane on the left, choose Subscribe > All Skills. The Skill Market page is displayed.
- **Step 2** Search for Human_Face_Detection_Offline_3516EV200_HiLinux in the skill search box and click the skill card. The skill details page is displayed.
- Step 3 Click Buy Now. The page for purchasing skills is displayed.
- Step 4 Specify Copies. You can retain its default value. The Specifications is default to Channel(s), indicating that a license can be installed on one device to use one channel of video.

Figure 4-2 Purchasing the skill

Purchased Skill

| 1 Configure | | | 2 Finish | |
|-------------------|--|-----------|--|-------------|
| Copies | - 1 + | | | |
| Specifications 🥘 | Channel(s) | | | |
| Privacy Statement | * Saves data on devices * Reads the device's microp | hone data | | |
| | | | ✓ I agree to the skill's privacy polic | cies ¥ 0 |
| | | | Total Theorem | |
| | Buy Now | Cancel | | |
| | Buy Now | Cancel | ✓ I agree to the skill's privacy polition Total Price | cie ¥ (|

Step 5 Confirm the price and click Buy Now.

After the purchase is successful, you can click **Purchased** to go to the **Subscribe** > **Order Management** page and distribute the skill.

| Figure 4-3 Successful pure Purchased Skill | chase | |
|---|--|------------|
| Configure | | — 2 Finish |
| | | |
| | Purchase completed. Go to Purchased to install your skills. | |
| | | |
| | | |
| | Back to Skill Market | |

Step 6 Go to **Subscribe > Order Management** to distribute the skill.

----End

Step 3: Use the Skill

Skills oriented to HiSilicon Hi35xx series chips can be used only after being distributed to device groups. For devices that run HiSilicon Hi35*xx* series chips, a maximum of five skills can be distributed to a device group due to performance restrictions.

- Step 1 Log in to the Huawei HiLens console. In the navigation tree on the left, choose Subscribe > Order Management. The Skill Orders tab is displayed by default.
- **Step 2** Select a skill designed to run on HiSilicon Hi35*xx* series chips, and distribute the skill license to a product group.
 - 1. Select the skill to be distributed and click **Distribute** in the **Operation** column.
 - 2. In the **Distribute to Product** dialog box, select the product group to which the license is to be distributed, and click the **Distribute to Product** button.

If you select **Yes** under **Automatic Upgrade**, the skill in the product will be automatically upgraded to the latest version if a new skill version is available. This function is not available yet and will be provided.

Figure 4-4 Distributing a skill

Distribute to Thin Product

| ■ Name ↓F | Description | Platform | Chip | Automatic Upgrade |
|----------------------------------|-----------------------|----------|-----------|-------------------|
| | sadsds | Linux | Arm | Yes |
| | device | Linux | 3516CV500 | Yes |
| | device | Linux | 3516CV500 | Yes |
| | device | Linux | 3516CV500 | Yes |
| | device | Linux | 3516CV500 | Yes |
| 5 • Total Records: 34 < 1 | 2 3 4 5 6 7 > | | | |
| | Distribute to Product | Cancel | | |

- 3. The skill distribution information is displayed in the dialog box. Confirm that the **Installation Status** is **Successful** and click **OK**.
- **Step 3** On the **Skill Orders** tab page, select the skill you want to use and click **Download** in the **Operation** column. The browser automatically downloads the SDK package of the skill.

Figure 4-5 Downloading SDK

| Pattorn: Linux Chip: Am | Remaining Quantity | 1 | Expand Capacity | Billing Mode Charging Type | One-time Pay Free | | |
|----------------------------|--------------------|---|-----------------|-------------------------------|-----------------------------------|-------------|--|
| | Quantity | 1 | | Purchased At | Aug 01. 2022 11:19:45 GMT+08:00 | Operation 🔺 | |
| | Maximum Channels | 1 | | Order No. | dic1604/SIh404edBa71ca64c37134laa | Distribute | |
| | | | | | | Download | |

Step 4 Install the skill. Integrate the downloaded SDK package to the device.

The device location where the skill is integrated varies according to the device. For details, see the description document in the SDK.

----End