

# **Tencent Effect SDK**

## **Product Introduction**

## **Product Documentation**



## Copyright Notice

©2013-2024 Tencent Cloud. All rights reserved.

Copyright in this document is exclusively owned by Tencent Cloud. You must not reproduce, modify, copy or distribute in any way, in whole or in part, the contents of this document without Tencent Cloud's the prior written consent.

## Trademark Notice



All trademarks associated with Tencent Cloud and its services are owned by Tencent Cloud Computing (Beijing) Company Limited and its affiliated companies. Trademarks of third parties referred to in this document are owned by their respective proprietors.

## Service Statement

This document is intended to provide users with general information about Tencent Cloud's products and services only and does not form part of Tencent Cloud's terms and conditions. Tencent Cloud's products or services are subject to change. Specific products and services and the standards applicable to them are exclusively provided for in Tencent Cloud's applicable terms and conditions.

# Contents

## Product Introduction

Overview

Features

Mobile/Desktop Editions

Web

Basic Concepts

Strengths

Use Cases

# Product Introduction

## Overview

Last updated : 2023-12-12 15:02:33

The **Tencent Effect SDK for mobile/desktop applications** enables advanced beauty effects based on YouTu's accurate AI capabilities and Pitu's rich real-time effect processing. It provides numerous effect capabilities for video processing use cases and can also be integrated with MLVB, UGSV, and TRTC SDKs to make development easier and more efficient.

In addition, the **Beauty AR Web SDK** allows you to implement AR effects such as AI beautification, filters, makeup styles, stickers, animojis, and virtual avatars into your mini programs and on desktop or mobile webpages, making it highly suitable for live stream publishing, virtual makeup shopping, and short video content production.

Documents:

[Beautification Features for Mobile / Desktop Editions](#)

[Beautification Features for Web](#)

[SDK Integration Guide for Mobile / Desktop Editions](#)

[Quick Integration Guide for Web](#)

## Supported Platforms

### Mobile

Platform	Environment Requirements
Android	Android Studio 3.5+ We recommend that you run the SDK on Android 7.0 (API level 24) or later.
iOS	Xcode 9.0+ We recommend that you run the SDK on iOS 12.2 or later. You need to configure a valid developer signature and a real device environment.

### Web

Platform	OS	Browser version	fps	Recommended configuration	Remarks
Web	Windows	Chrome 90+ Firefox 90+	30	Memory: 16 GB CPU: i5-10500 GPU: 2 GB discrete graphics	We recommend that you use the latest version of Chrome. <b>(With hardware acceleration enabled)</b>



		Edge 97+	15	Memory: 8 GB CPU: i3-8300 GPU: Intel 1 GB integrated graphics	
	macOS	Chrome 98+ Firefox 96+ Safari 14+	30	MacBook (2019) Memory: 16 GB (2667 MHz) CPU: i7 (6-core 2.60 GHz) GPU: AMD Radeon 5300M	
	Android	Chrome Firefox UC Browser QQ Browser Mi Browser HUAWEI Browser	30	High-end devices such as Xiaomi 12S	We recommend that you use Chrome or Firefox. QQ Browser and UC Browser perform poorly on low-end devices.
			20	Mid-end devices such as OPPO K10	
			10	Low-end devices such as Redmi Note 7	
	iOS	Chrome Safari Firefox	30	iPhone 13	iOS 14.4 or later is required. We recommend that you use Chrome or Safari. <b>QQ Browser is not supported.</b>
			20	iPhone XR	
Mini program	-	Weixin mini program Weixin built-in browser	20–30	-	Weixin 8.0.16 or later

# Features

## Mobile/Desktop Editions

Last updated : 2024-05-13 15:58:47

### Feature Overview

Supported Formats	Module	Description	Supported Platforms
Video/image	Face quality detection	Detects when a face is partially captured or concealed or when there are multiple faces	Android iOS Windows macOS
	Image adjustment (with adjustable strength)	Contrast, saturation, sharpness, sharpen, warmth, and Tint	
	Basic beautification (with adjustable strength)	Brightening, skin smoothing, and rosy skin filter	
	Advanced beautification (with adjustable strength)	Big eyes, face width, slim face (natural, woman, and man), V shape, chin, face length, face shape, hairline, bright eyes, eye distance, eye corners, Eye width, Eye height, Eyebrow angle, Eyebrow distance, Eyebrow height, Eyebrow length, Eyebrow thickness, Eyebrow ridge, slim nose, nose wings, cheekbones, nose position, Bridge of the nose, Root of the nose, white teeth, wrinkles, smile lines, eye bags, lip shape, lip height, Lip width, Lip position, Smile face	
	Single-point makeup(with adjustable strength)	Lipstick, blush, three-dimensional, eyeshadow,	

		eyeliner, eyelashes, eyebrows
	Advanced body retouch (with adjustable strength)	Slim body, long legs, slim legs, slim shoulders, small head, and chest enlarging
	Filters (with adjustable strength)	Real-time image coloring
	2D/3D stickers	Entertaining face widgets and lifelike 3D animated stickers
	Makeup effects (with adjustable strength)	A complete set of trendy makeup effects can be quickly added for natural beautification and used with partial makeup.
	Gesture stickers	One gesture sticker is offered for free based on the gesture capability of the purchased package.
	Keying/Virtual backgrounds	General stickers based on keying. Background customization (in images and videos) and blur are supported.
	Animojis	Animojis support real-time mirroring of facial expressions.
	Facial keypoint detection	256 facial keypoints are provided.
	Gesture detection	Recognition and data output of 14 types of common hand gestures and 31 key points.

Module	Description	Supported Platforms
Material creation tools	Interesting special effects can be created for videos based on the purchased AI capabilities. With	Android iOS

abundant built-in excellent materials, special effects, templates, trendy makeup effects, and interactive games can be customized. See detailed usage instructions for more information [Tutorial for using material creation tools](#)

Windows  
macOS

## Feature Demonstration

### Smart beautification

Based on cutting-edge image processing technology and face recognition algorithms, this feature integrates multiple styles to offer diverse smart beauty filters.



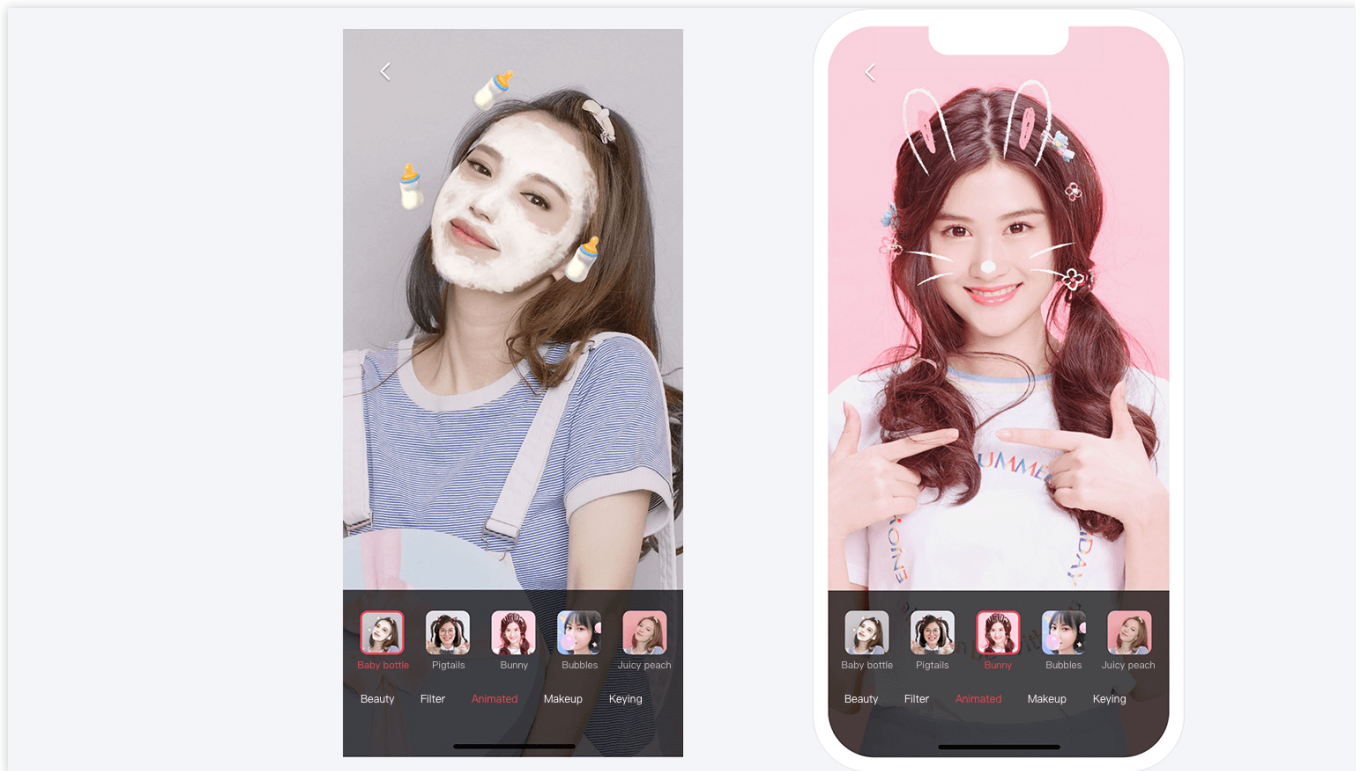
### Special effect filters

This feature boasts a wealth of premium filters offered by Pitu for real-time image coloring, which can be even more naturally fit with Tencent's leading image fusion and enhancement technologies.



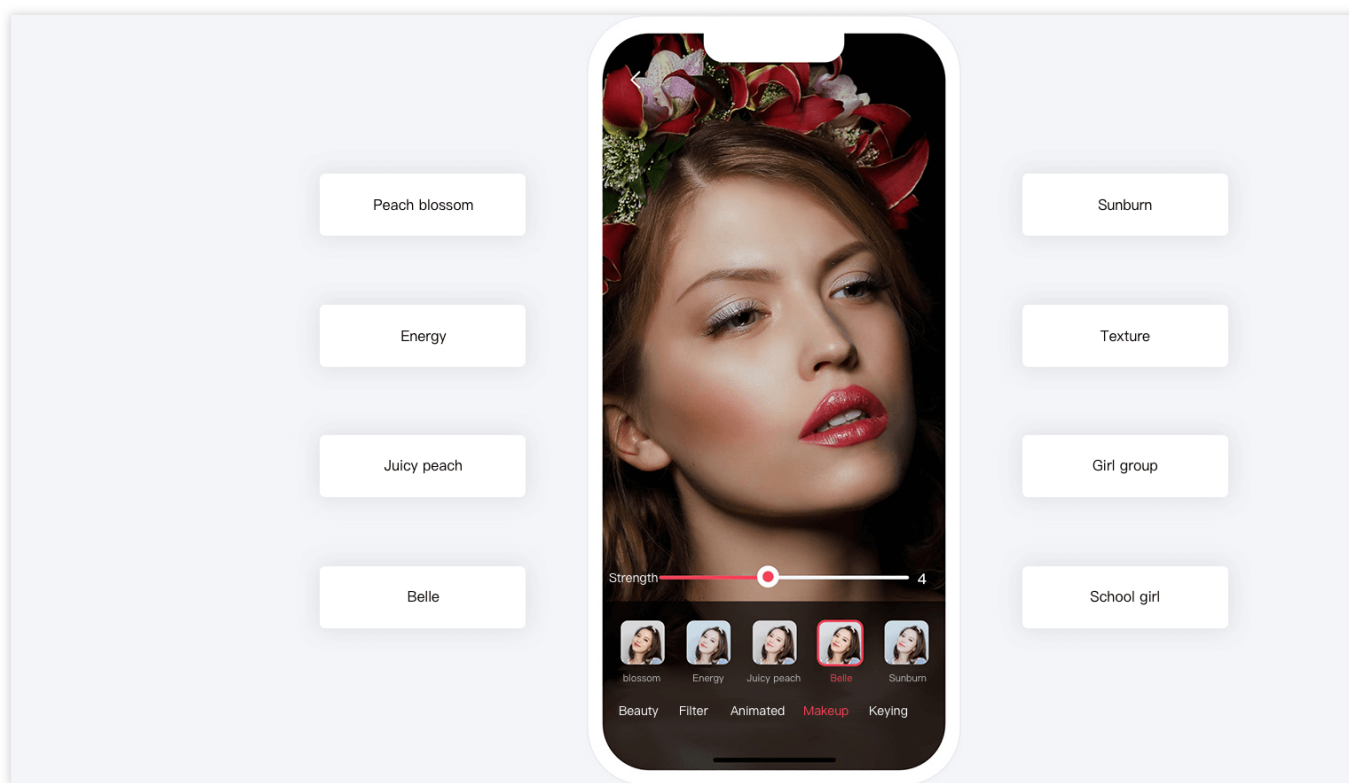
## Animated stickers

This feature accurately locates and tracks facial features for Pitu's copious 2D/3D individual/group animated stickers to fit, which can be triggered by gestures. In addition, users can DIY materials guided by a professional material editor.



## Multi-style makeup

This feature supports skin smoothing and brightening in real time. It precisely locates facial features for adjustment, allowing users to "wear" chic makeup styles from Pitu with a single click.



## Precise keying

This feature offers real-time keying and can replace the background in a video with a background that is intricate and dynamic. Edges are processed to achieve a larger aperture effect, and facial effects can be added to videos.





## Body retouch

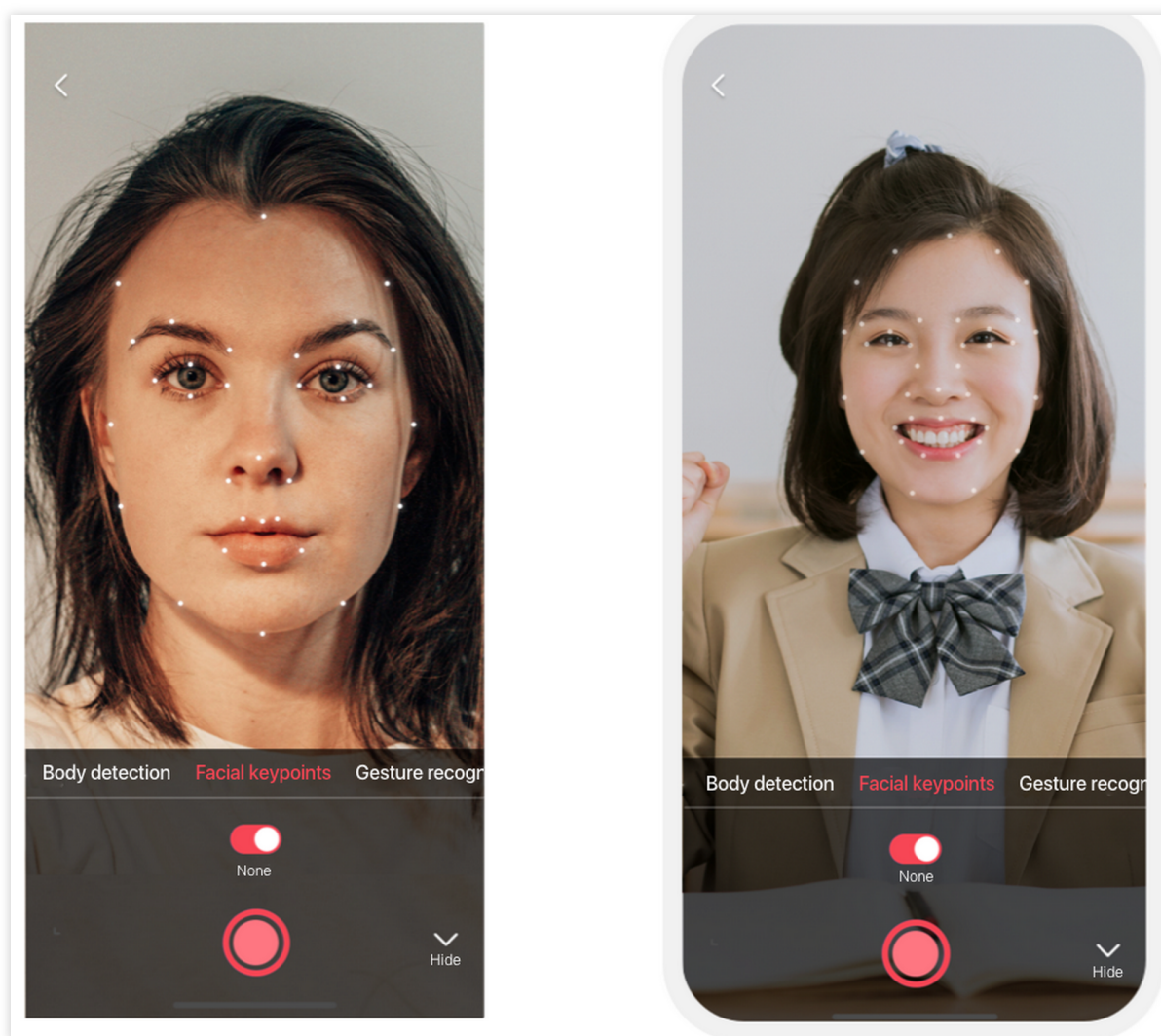
Based on precise keypoint recognition, this feature beautifies the body by implementing capabilities such as slim body, long legs, slim legs, slim shoulders, and small head.





## Facial keypoint detection

This feature accurately detects when a face is partially captured or concealed or when there are multiple faces by recognizing and outputting 256 facial keypoints.



# Web

Last updated : 2023-07-25 18:14:05

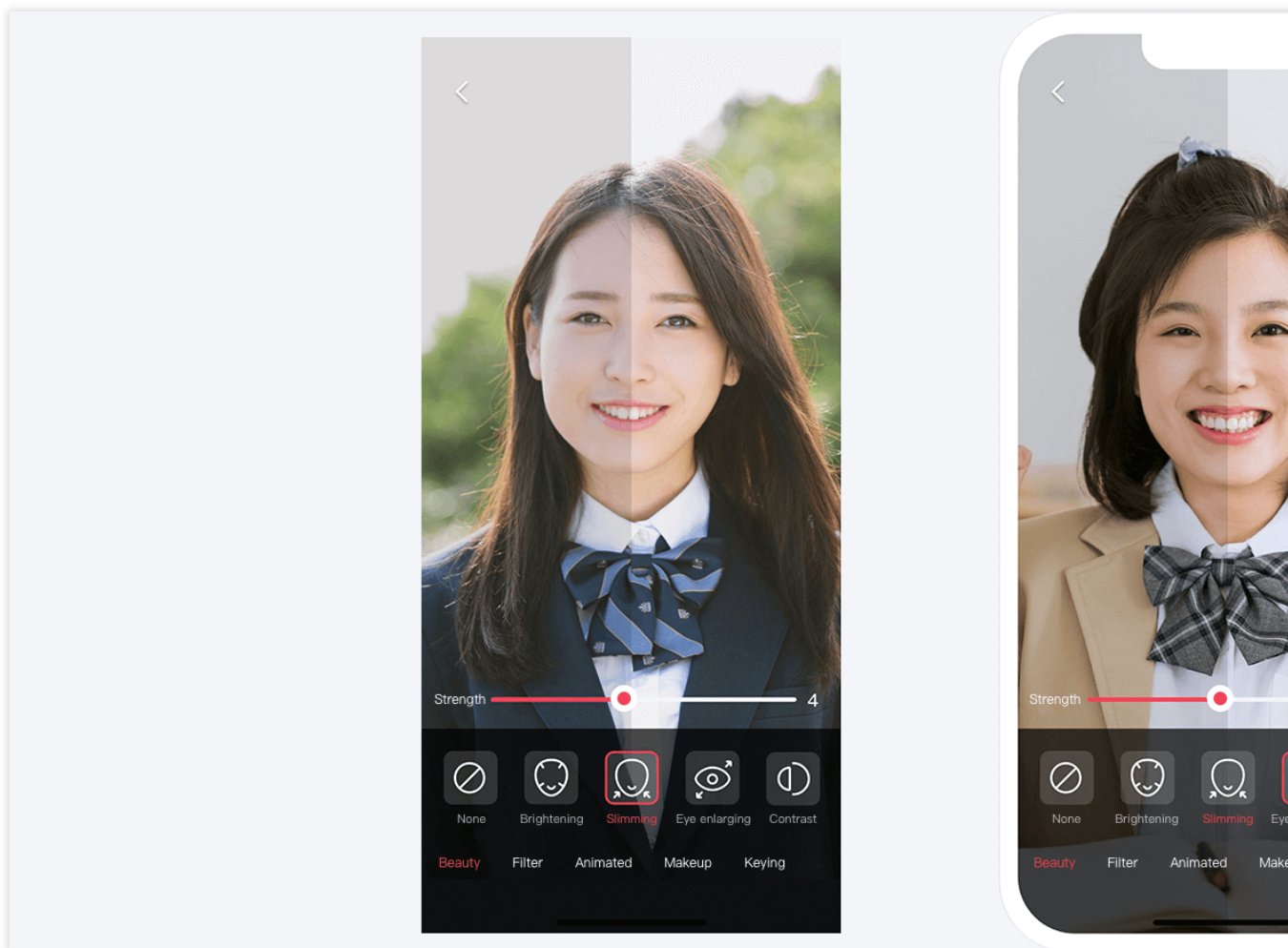
## Feature Overview

Supported Formats	Module	Description	Supported Platforms
Video	Beautification	Brightening, smooth skin, slim face, V shape, big eyes, chin	Web Mini program
	Filters	Real-time image coloring	
	Makeup	A complete set of trendy makeup effects can be quickly added for natural beautification.	
	2D stickers	Entertaining face widgets	
	3D stickers	Lifelike 3D animated stickers	
	Virtual background	The background can be blurred, customized, or made transparent to remove people from it.	Web
	Animojis	Animojis support real-time mirroring of facial expressions.	
	Virtual avatars	Facial keypoint recognition technology is used with AI and computer graphics to accurately simulate facial expressions. Model customization is supported.	
	Material production tools	Online material production tools and template materials help you easily create effect materials, which can be quickly released through the material management system.	

## Features

### Smart beautification

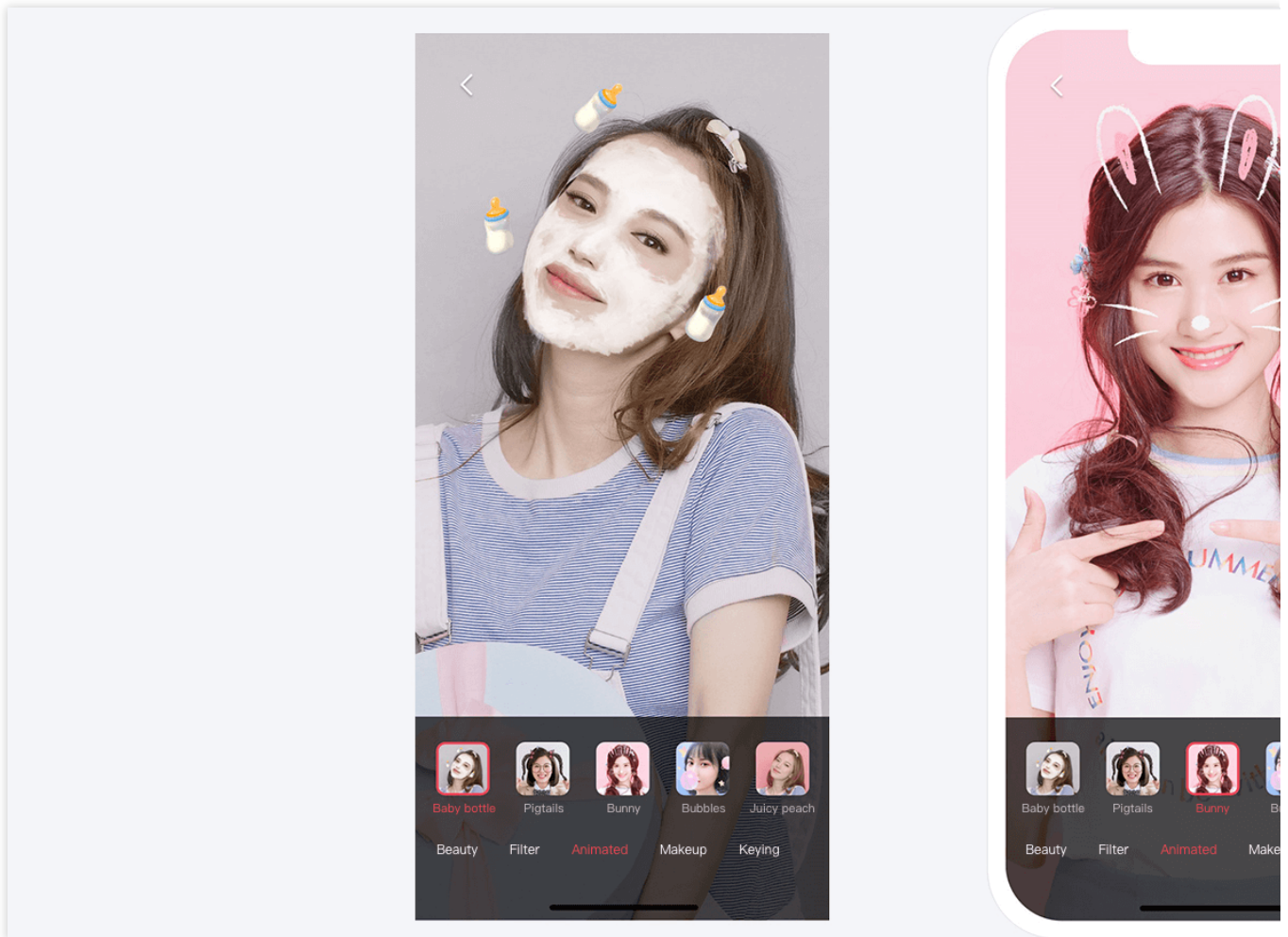
Rich real-time beauty effects such as skin brightening and smoothing, face slimming, and eye enlarging are provided based on facial keypoint detection and WebGL technology for advanced and natural-looking beautification.



## Animated stickers

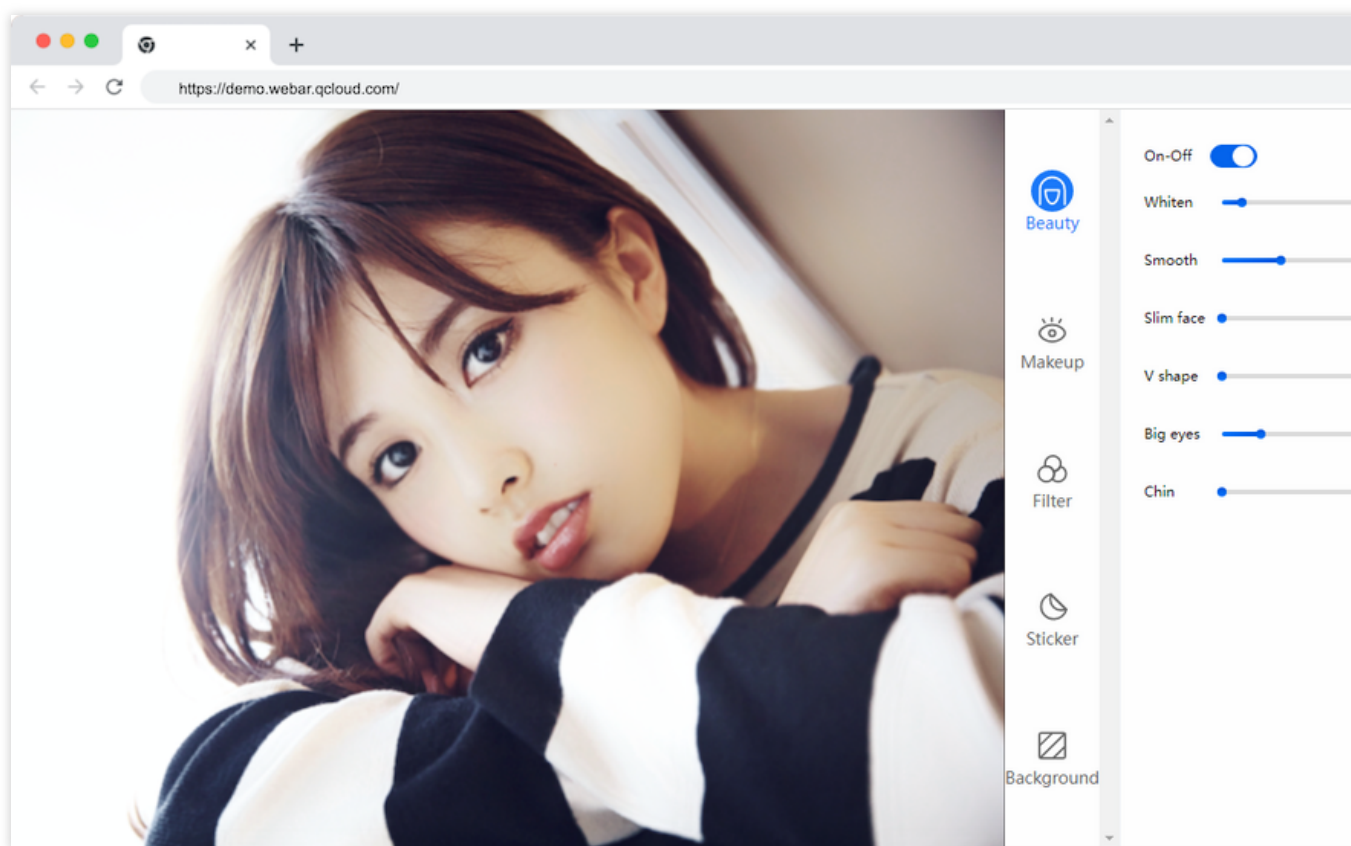
Leveraging accurate facial feature positioning and tracking technology, convenient online material production tools let you create 2D/3D materials and animations as well as personalized stickers.

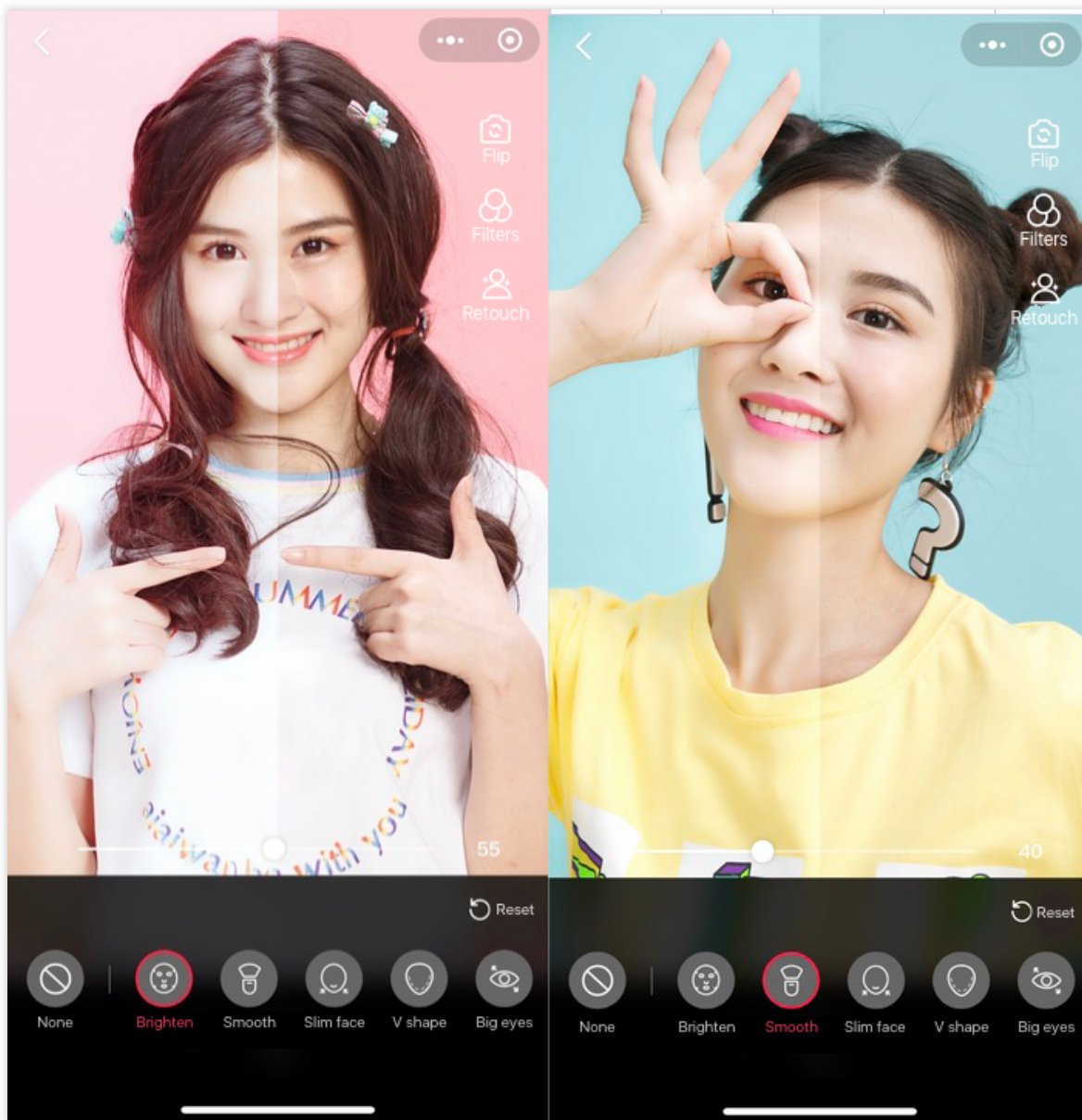




## Makeup filters

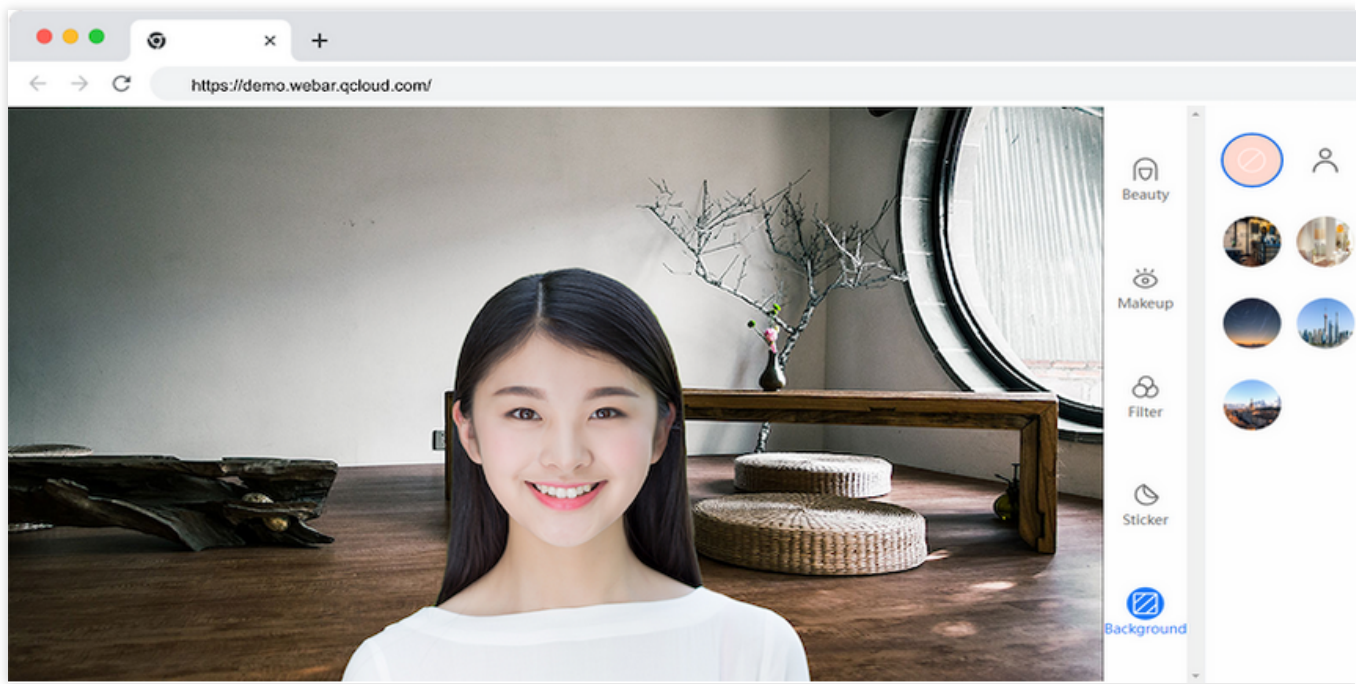
Makeup overlay and real-time image coloring create makeup effects that look life-like and natural. Multiple built-in makeup effects are provided for free creation.





## Keying

Portrait outline recognition allows for precise keying and background segmentation. A background can be blurred, customized, or made transparent.



### 3D effects (new in v0.3.0)

The real environment is simulated based on an accurate model tracking algorithm to present a vivid 3D effect. The model can be customized and visually edited.

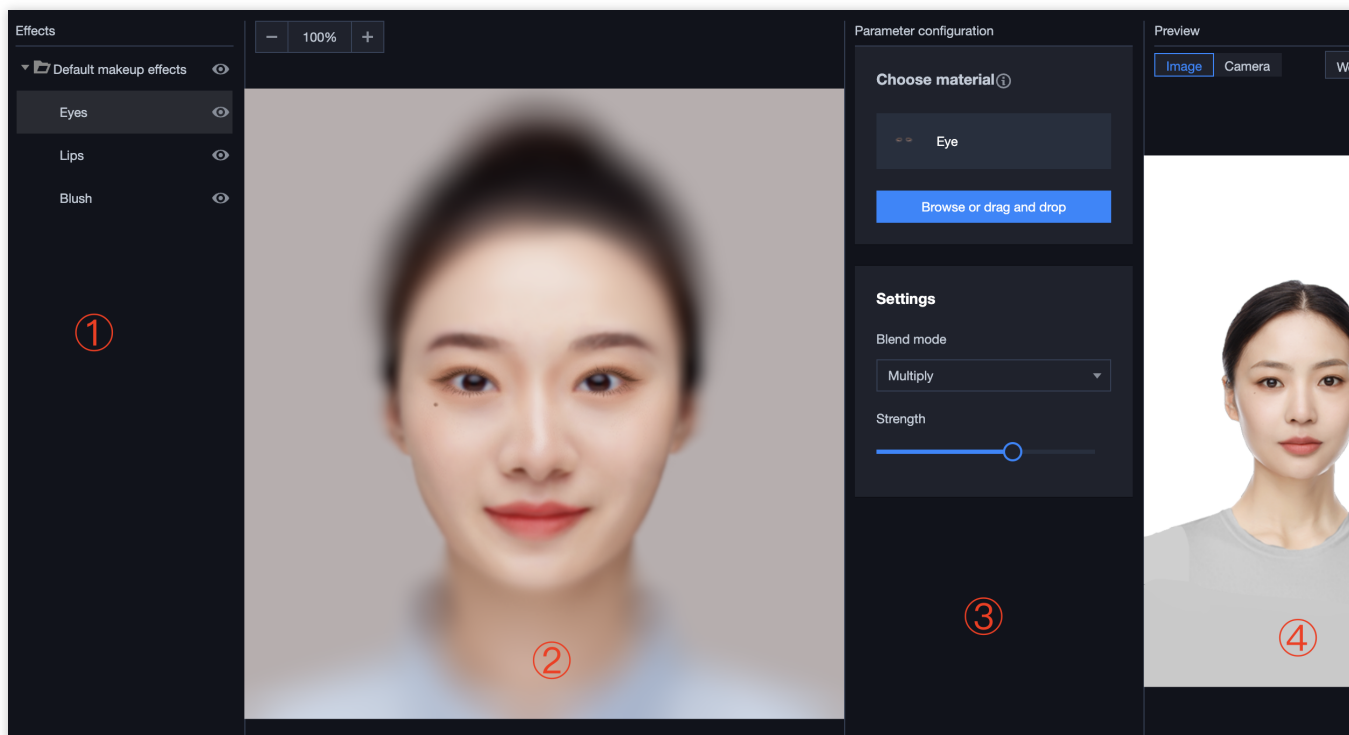
### Animojis and virtual avatars (new in v0.3.0)

Facial keypoint recognition technology is used with AI and computer graphics to accurately simulate facial expressions. Model customization is supported.

### Material operations

With online material production tools and effect templates, you can easily create the materials you want and quickly release them through the material management system.





# Basic Concepts

Last updated : 2023-04-11 15:51:54

## Beautification

This module offers smart beautification capabilities. It supports approximately 30 kinds of facial feature adjustment, including skin smoothing, face slimming, eye enlarging, sharpening, brightening, face shrinking, face narrowing, cheekbone slimming, nose slimming, lip reshaping, forehead reshaping, lipstick, blush, facial contouring, teeth whitening, eye dark circle removal, smile line removal, rosy skin, saturation adjustment, contrast adjustment, wrinkle removal, eye tilting, face shortening, eye brightening, nose wing adjustment, nose position adjustment, eye bag removal, lip thickness adjustment, eye distance adjustment, and chin reshaping.

## Filters

This module leverages the image fusion technology to offer many high-performance, natural, and real-time color filters such as white, natural, first love, clear, confession, allure, and bright.

## Animated stickers

With the capabilities of facial feature location and tracking as well as gesture recognition, this module offers many 2D and 3D animated stickers that can be dynamically applied to one or multiple people.

## Makeup

This module supports skin smoothing and brightening in real time. It precisely locates facial features for adjustment so that users can apply fashionable makeup styles, including peach blossom, energy, juicy peach, and belle, with a single click.

## Keying

This module supports real-time keying and offers many sophisticated and animated backgrounds.

## Bundle ID

Bundle ID, also called app ID, is the unique identifier of an iOS application.

You can view the bundle ID of your application in **General > Identity** in Xcode.

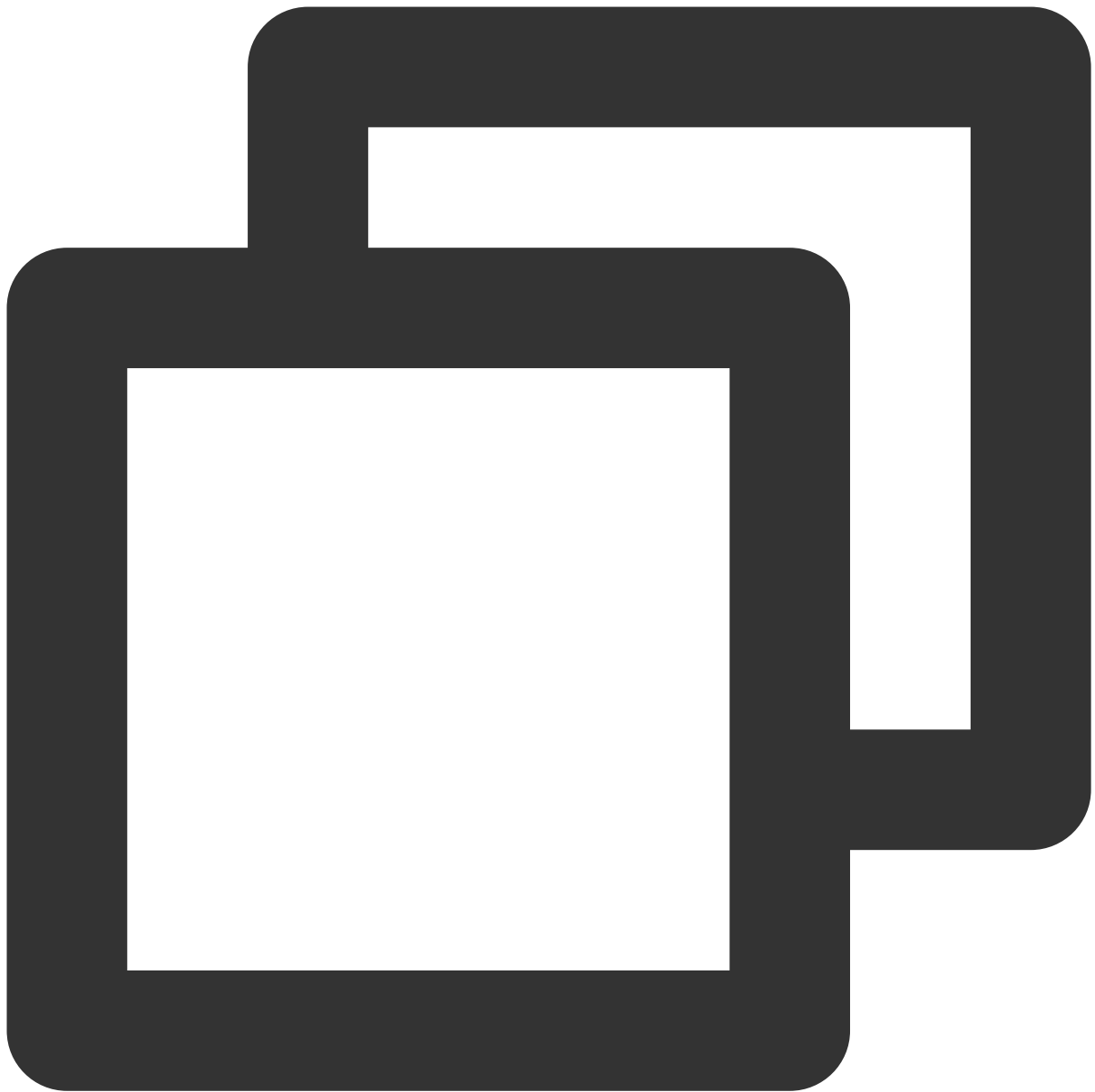
**▼ Identity**

<b>Display Name</b>	<input data-bbox="699 340 1343 392" type="text" value="\${PRODUCT_NAME}"/>
<b>Bundle Identifier</b>	<input data-bbox="699 403 1343 459" type="text" value="de.telekom.entertain-tv-mobil"/>
<b>Version</b>	<input data-bbox="699 470 1343 526" type="text" value="1.0"/>
<b>Build</b>	<input data-bbox="699 537 1343 586" type="text" value="1.0"/>

**Package name**

Package name is a unique concept on Android as the unique identifier of an application.

You can view the package name in the `Mainfest.xml` file of your Android project.



```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.huawei.player"
android:versionCode="20181111"
android:versionName="1.0">
```

# Strengths

Last updated : 2023-04-11 15:51:54

## Tencent Effect SDK

### Rich feature modules

In addition to basic features such as beauty filters, makeup styles, and stickers, the Tencent Effect SDK enables accurate keying and segmentation that allow users to customize and blur the background in images and videos.

### Awesome beauty filters

It offers seven face shaping effects, including face slimming and shortening, enabling users to freely customize their look in various dimensions and bring out their beauty.

### Stunning filters

It uses industry-leading 3D capabilities to display professional filters and animated stickers that accurately track to facial keypoints, delivering an immersive and personalized interactive experience.

### Powerful material production tools

The Tencent Effect SDK gives you access to a huge material library and rich AI features, including 3D capabilities, process control, and animated effects import, making effect customization effortless.

### Ease of use

It can be quickly and easily integrated with MLVB, UGSV, and TRTC SDKs to apply effects. For detailed directions, see [Demos](#).

## Beauty AR Web SDK

### Superior performance

The Beauty AR Web SDK offers AR capabilities such as beauty filters and effects that can run efficiently on web and mini programs. It can render up to 1080p at 60fps and ensures that the rendering performance of the application's main thread is not affected on the basis of ultimate optimization of Worker and WebAssembly.

### Powerful features

The Beauty AR Web SDK is one of the few facial AR solutions in the industry that performs on web and mini program platforms as well as on mobile clients. It offers popular features such as AI beautification, makeup styles, and stickers

and **adds 3D effects, animojis, and virtual avatars in v0.3.0**, with more advanced features to come.

## Online operations

With a set of SDKs and user console, the Beauty AR Web SDK helps you produce and manage materials online and share them among your web and mini program projects.

## Ease of use

Beauty AR Web SDK capabilities can be quickly integrated into your applications. We offer demos that you can run within minutes with only 10 lines of code. It is also easy to use together with TRTC and WebRTC.

[Quick Start](#)

[Integrating Beauty AR Web SDK with WebRTC](#)

[Integrating Beauty AR Web SDK with TRTC](#)

[Integrating Beauty AR Web into Mini Program](#)

# Use Cases

Last updated : 2023-04-11 15:51:54

## Tencent Effect SDK

### **Live streaming**

Enable a more fun and entertaining video experience in interactive live streaming, video calls, video conferencing, and other real-time video applications.

### **Chat**

Use the Tencent Effect SDK with mobile messaging apps to enable users to share captivating photos and videos with special effects.

### **Short video**

Enhance creative short videos with brilliant lighting and other special effects.

### **Gaming**

Introduce a higher level of immersion during gameplay and streaming to unleash more fun for players and viewers.

### **AI camera**

The Tencent Effect SDK quickly locates facial features, smooths and brightens skin in real time, and offers filters to make photos unforgettable.

### **Meeting**

Allow users to customize their background to set the scene during meetings and conferences and enhance their look with life-like beauty filters.

## Beauty AR Web SDK

### **Video live streaming**

The Beauty AR Web SDK enables a more fun and entertaining video experience interactive live streaming, video calls, video conferencing, and other real-time video applications on the web.

### **Makeup shopping**

Integrate the Beauty AR Web SDK into an ecommerce mini program or webpage to enable users to try on new makeup products (separate effects such as eye color and lipstick can be implemented). It can be combined with 3D effects to deliver shoppers with a life-like makeup shopping experience.

## **Marketing**

In mini program marketing scenarios, the Beauty AR Web SDK can be used with your brand's unique materials to deliver users an exciting AR experience, so as to enhance your brand's exposure through sharing and social media.

## **Short video production**

In short video production scenarios, the Beauty AR Web SDK can be integrated to shoot and create videos with beautification and AR effects on the web or in a mini program. It can be used with the Weijian mini program plugin to implement more video production features.