ArcSoft Gender Estimation

开发指导文档

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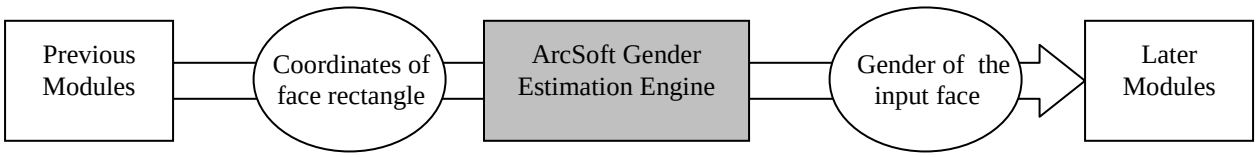
Chapter 1: 概述

虹软性别检测引擎工作流程图.



1.1. 运行环境

- iOS armv7, arm64

1.2. 系统要求

- 支持 iOS 8.x 及以上

1.3. 依赖库

- 虹软平台库

注: 请把虹软平台库的头文件 (在 SDK 包的“platform”目录下)放入您的开发工程里面。

Chapter 2: 结构与常量

2.1. 基本类型

所有基本类型在平台库中有定义。 定义规则是在 ANSIC 中的基本类型前加上字母“M”同时将类型的第一个字母改成大写。例如“long” 被定义成“MLong”

2.2. 数据结构

2.2.1. ASGE_FSDK_Version

描述

SDK 版本信息

定义

```
typedef struct{
	MInt32 lCodebase;
	MInt32 lMajor;
	MInt32 lMinor;
	MInt32 lBuild;
	MPChar Version;
	MPChar BuildDate;
	MPChar CopyRight;
} ASGE_FSDK_Version;
```

成员变量

lCodebase	代码库版本号
lMajor	主版本号
lMinor	次版本号
lBuild	编译版本号，递增
Version	字符串形式的版本号
BuildDate	编译时间
CopyRight	版权信息

2.2.2. ASGE_FSDK_GENDERRESULT

描述

定义性别检测结果信息

定义

```
typedef struct{
       MInt32        *pGenderResultArray;
       MInt32        lFaceNumber;
} ASGE_FSDK_GENDERRESULT, *LPASGE_FSDK_GENDERRESULT;
```

成员变量

pGenderResultArray	检测出的性别结果数组
lFaceNumber	检测出的性别结果个数

2.2.3. ASGE _FSDK_GENDERFACEINPUT

描述

定义脸部信息

定义

```
Typedef struct{
       MRECT         *pFaceRectArray;
       MInt32        *pFaceOrientArray;
       MInt32        lFaceNumber;
} ASGE_FSDK_GENDERFACEINPUT, *LPASGE_FSDK_GENDERFACEINPUT;
```

成员变量

pFaceRectArray	人脸框信息数组
pFaceOrientArray	输入的人脸角度数组。
lFaceNumber	人脸个数

2.3. 枚举

2.3.1. ASGE_FSDK_GenderOrientCode

描述

定义基于逆时针方向的人脸角度

定义

```
enum ASGE_FSDK_GenderOrientCode {
              ASGE_FSDK_FOC_Gender_0     = 0x1,
              ASGE_FSDK_FOC_Gender_90    = 0x2,
```

```
    ASGE_FSDK_FOC_Gender_270   = 0x3,
    ASGE_FSDK_FOC_Gender_180   = 0x4,
    ASGE_FSDK_FOC_Gender_30    = 0x5,
    ASGE_FSDK_FOC_Gender_60    = 0x6,
    ASGE_FSDK_FOC_Gender_120   = 0x7,
    ASGE_FSDK_FOC_Gender_150   = 0x8,
    ASGE_FSDK_FOC_Gender_210   = 0x9,
    ASGE_FSDK_FOC_Gender_240   = 0xa,
    ASGE_FSDK_FOC_Gender_300   = 0xb,
    ASGE_FSDK_FOC_Gender_330   = 0xc
};
```

成员变量

ASGE_FSDK_FOC_Gender_0	0 度
ASGE_FSDK_FOC_Gender_90	90 度
ASGE_FSDK_FOC_Gender_270	270 度
ASGE_FSDK_FOC_Gender_180	180 度
ASGE_FSDK_FOC_Gender_30	30 度
ASGE_FSDK_FOC_Gender_60	60 度
ASGE_FSDK_FOC_Gender_120	120 度
ASGE_FSDK_FOC_Gender_150	150 度
ASGE_FSDK_FOC_Gender_210	210 度
ASGE_FSDK_FOC_Gender_240	240 度
ASGE_FSDK_FOC_Gender_300	300 度
ASGE_FSDK_FOC_Gender_330	330 度

2.4. 支持的颜色格式

描述

颜色格式及其对齐规则

定义

ASVL_PAF_NV12	8-bit Y 层，之后是 8-bit 的 2x2 采样的 U 层和 V 层
ASVL_PAF_RGB24_B8G8R8	每个像素 8-bit B，8-bit R，8-bit R

Chapter 3: API 说明

3.1. ASGE_FSDK_InitGenderEngine

原型

```
MRESULT ASGE_FSDK_ InitGenderEngine (
       MPChar                    AppId,
       MPChar                    SDKKey,
       MByte                     *pMem,
       MInt32                    lMemSize
       MHandle                   *phEngine
);
```

描述

初始化性别检测引擎

参数

AppId	[in]	用户申请 SDK 时获取的 App Id
SDKKey	[in]	用户申请 SDK 时获取的 SDK Key
pMem	[in]	分配给引擎使用的内存地址
lMemSize	[in]	分配给引擎使用的内存大小
phEngine	[out]	性别检测引擎

返回值

成功返回 MOK，否则返回失败 code。失败 codes 如下所列:

MERR_INVALID_PARAM	参数输入非法
MERR_NO_MEMORY	内存不足

3.2. ASGE_FSDK_GenderEstimation_StaticImage

原型

```
MRESULT ASGE_FSDK_GenderEstimation_StaticImage (
       MHandle                                 hEngine,
       LPASVLOFFSCREEN                         pImginfo,
       LPASGE_FSDK_GENDERFACEINPUT             pFaceRes,
       LPASGE_FSDK_GENDERRESULT                pGenderRes,
);
```

描述

检测静态图片中人物的性别

参数

hEngine	[in]	性别检测引擎
pImginfo	[in]	输入图像信息
pFaceRes	[in]	输入的图像中人脸信息， 需要事先用人脸引擎检测出
pGenderRes	[out]	性别检测结果

返回值

成功返回 MOK，否则返回失败 code。失败 codes 如下所列:

MERR_INVALID_PARAM	参数输入非法
MERR_NO_MEMORY	内存不足

3.3. ASGE_FSDK_GenderEstimation_Preview

原型

```
MRESULT ASGE_FSDK_GenderEstimation_Preview (
      MHandle                                hEngine,
      LPASVLOFFSCREEN                        pImginfo,
      LPASGE_FSDK_GENDERFACEINPUT            pFaceRes,
      LPASGE_FSDK_GENDERRESULT               pGenderRes,
);
```

描述

检测动态视频中人物的性别

参数

hEngine	[in]	性别检测引擎
pImginfo	[in]	输入的图像数据
pFaceRes	[in]	已检测到的脸部信息
pGenderRes	[out]	性别检测结果

返回值

成功返回 MOK，否则返回失败 code。失败 codes 如下所列:

MERR_INVALID_PARAM	参数输入非法
MERR_NO_MEMORY	内存不足

3.4. ASGE_FSDK_UninitGenderEngine

原型

```
MRESULT ASGE_FSDK_UninitGenderEngine (
      MHandle      hEngine
);
```

描述

销毁引擎，释放相应资源

参数

hEngine	[in]	性别检测引擎

返回值

成功返回 MOK，否则返回失败 code。失败 codes 如下所列:

MERR_INVALID_PARAM　　参数输入非法

3.5. ASGE_FSDK_GetVersion

原型

```
const ASGE_FSDK_Version* ASGE_FSDK_GetVersion(
      MHandle      hEngine
);
```

描述

获取 SDK 版本信息

参数

hEngine	[in]	性别检测引擎

Chapter 4: Sample Codes

```
#include "ammem.h"
#include "merror.h"
#import <arcsoft_fsdk_gender_estimation/arcsoft_fsdk_gender_estimation.h>

#include <stdlib.h>


#define ARC_APP_ID                ""
#define ARC_GENDER_SDK_KEY        ""
#define ARC_GENDER_MAX_FACE_NUM   5
#define ARC_GENDER_MEM_SIZE       1024*1024*30

MRESULT doGenderEstimation()
{
    // init
    MVoid* pMemBuffer = MMemAlloc(MNull, ARC_GENDER_MEM_SIZE);
    MHandle hEngine = MNull;
    MRESULT mr = ASGE_FSDK_InitGenderEngine((MPChar)ARC_APP_ID,
(MPChar)ARC_GENDER_SDK_KEY, (MByte*)pMemBuffer,
ARC_GENDER_MEM_SIZE, &hEngine);
    if (MOK != mr) {
        // check the error code
    }

    ASGE_FSDK_GENDERFACEINPUT genderFaceInput = {0};
    genderFaceInput.lFaceNumber = 0;
    genderFaceInput.pFaceRectArray = (MRECT *)MMemAlloc(MNull,
sizeof(MRECT)*ARC_GENDER_MAX_FACE_NUM);
    genderFaceInput.pFaceOrientArray = (MInt32 *)MMemAlloc(MNull,
sizeof(MInt32)*ARC_GENDER_MAX_FACE_NUM);

    // estimation
    ASVLOFFSCREEN offScreenIn = {0};              // image data, replaced with your
data
    offScreenIn.u32PixelArrayFormat = ASVL_PAF_NV12;  // image format
    offScreenIn.i32Width = 1280;                  // image width
    offScreenIn.i32Height = 720;                  // image height
    offScreenIn.pi32Pitch[0] = offScreenIn.i32Width;  // pitch of plane 0, may not be equal
to width
    offScreenIn.pi32Pitch[1] = offScreenIn.i32Width;  // pitch of plane 1, may not be equal
to width
    offScreenIn.ppu8Plane[0] = MNull;             // data address of plane 0
    offScreenIn.ppu8Plane[1] = MNull;             // data address of plane 1

    genderFaceInput.lFaceNumber = 1;              // set face number from face detection
or face tracking result
```

```
    //genderFaceInput.pFaceRectArray               // set face rect array from face
detection or face tracking result
    //genderFaceInput.pFaceOrientArray             // set face orient array from face
detection or face tracking result

    ASGE_FSDK_GENDERRESULT genderResult = {0};
    MBool previewData = MTrue;                     // do preview data or static data gender
estimation
    if(previewData)
        mr = ASGE_FSDK_GenderEstimation_Preview(hEngine, &offScreenIn,
&genderFaceInput, &genderResult);
    else
        mr = ASGE_FSDK_GenderEstimation_StaticImage(hEngine, &offScreenIn,
&genderFaceInput, &genderResult);

    // unit
    if (genderFaceInput.pFaceRectArray)
    {
        MMemFree(MNull, genderFaceInput.pFaceRectArray);
        genderFaceInput.pFaceRectArray = MNull;
    }
    if (genderFaceInput.pFaceOrientArray)
    {
        MMemFree(MNull, genderFaceInput.pFaceOrientArray);
        genderFaceInput.pFaceOrientArray = MNull;
    }
    mr = ASGE_FSDK_UninitGenderEngine(hEngine);
    if(pMemBuffer != MNull)
    {
        MMemFree(MNull,pMemBuffer);
        pMemBuffer = MNull;
    }

    return mr;
}
```