

模式识别与计算机视觉

数据获取及模式识别系统的例子

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目标

- ✓ 和前面讲述内容对照，以Microsoft Kinect为例，了解一个完整的系统的各模块、其面临的困难和所需处理的各种问题
- ✓ 从模式识别的角度出发，审视Kinect系统中与模式识别相关的各模块

Kinect

- ✓ Kinect is a line of **motion sensing input devices** by Microsoft for Xbox 360 and Xbox One video game consoles and Windows PCs. Based around a **webcam-style addon peripheral**, it enables users to **control and interact with** their console/computer without the need for a game controller, **through a natural user interface** using **gestures** and **spoken commands**.
- ✓ 如未特别说明，信息来源均为英文Wiki，2014/1/5

使用方式

- ✓ Microsoft released Kinect **software development kit** for Windows 7 on June 16, 2011.[11][12][13] This SDK was meant to **allow developers to write Kinecting apps** in C++/CLI, C#, or Visual Basic .NET.[14][15]



功能

- ✓ The device features an "RGB camera, depth sensor and multi-array microphone running proprietary software",[22] which provide full-body 3D motion capture, facial recognition and voice recognition capabilities.

获取深度信息

- ✓ The depth sensor consists of an infrared laser projector combined with a monochrome CMOS sensor, which captures video data in 3D under any ambient light conditions.[9][24]
- ✓ The monochrome depth sensing video stream is in VGA resolution (640×480 pixels) with 11-bit depth, which provides 2,048 levels of sensitivity.
- ✓ The Kinect sensor has a practical ranging limit of 1.2–3.5 m (3.9–11 ft) distance when used with the Xbox software.

Mocap : Motion Capture



为什么要讲Kinect ?

- ✓ 这个版本其实已经停产
- ✓ 但是曾经是那时**最先进的产品**，非常流行
- ✓ 技术基础获得**CVPR 2011最佳论文奖**
 - 其PPT可以下载观看
 - 重点：其中用到的所有（或绝大部分？）技术，我们这门课到目前为止都讲过了！
 - 所以，请大家自己看看那个PPT