

TheCaseSolutions.com

Kyle Evans at Ruffian Apparel: Staffing a Retail Establishment

Thecasesolutions.com Concepts

- Introduction
- Augmented Reality
- Why
- Scene Generator
- Tracking System
- Revision 8/2012
- Display
- Deployment
- Video
- Assessment
- Conclusion



Thecasesolutions.com AR Cont. Components

3 Components of AR

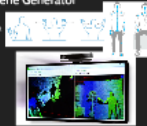
- Scene Generator
- Tracking System
- Display



Thecasesolutions.com Scene Generator

How does it work? How does it work?

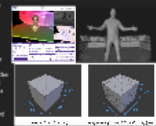
- 2D and 3D graphics, each with its own metadata
- 12 Dimensions of AR objects added to the scene
- Real-time rendering and world with 60 frames



Thecasesolutions.com Kinect Fusion

Kinect Fusion: 3D reconstruction of the scene from the Kinect sensor's depth and color data.

- Real-time 3D reconstruction of the scene
- Real-time 3D reconstruction of the scene
- Real-time 3D reconstruction of the scene



Thecasesolutions.com Introduction

My names Josh Cottier and my new media capstone is a research project on augmenting a retail in-room experience to reinvent retail for the future.



Thecasesolutions.com Augmented Reality

- Around for 40 years
- Head-mounted displays
- Mobile phones
- Green Screens
- Interactive weather men
- Terminator
- Iron Man
- Predator



Thecasesolutions.com Why?

Why? Why?

- Why? Why?
- Why? Why?
- Why? Why?



Thecasesolutions.com Kinect Fusion Cont.

Kinect Fusion Cont.

- Kinect Fusion Cont.
- Kinect Fusion Cont.
- Kinect Fusion Cont.



Thecasesolutions.com Display

Display

- RGB high definition resolution (1920x1080p)
- USB 3 port or is compatible with Xbox One HDMI
- 32 bit or 64 bit, dual-core, 2.66 GHz (quad-core) or faster processors
- 2GB ram
- Display hides the illusion of real world and virtual worlds in one space



Thecasesolutions.com Hardware

Hardware

- Hardware
- Hardware
- Hardware



Thecasesolutions.com Hardware

Hardware

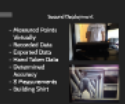
- Hardware
- Hardware
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Thecasesolutions.com Hardware

Hardware

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- Hardware
- Hardware



Thecasesolutions.com Hardware

Hardware

- Hardware
- Hardware
- Hardware



Thecasesolutions.com Conclusion of NMD498

Conclusion of NMD498

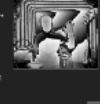
- Conclusion of NMD498
- Conclusion of NMD498
- Conclusion of NMD498



Thecasesolutions.com Infrared Basics: Depth to Depth

Infrared Basics: Depth to Depth

- Infrared Basics: Depth to Depth
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- Infrared Basics: Depth to Depth



Thecasesolutions.com Infrared Basics: Code Edit: VI

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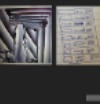
- Infrared Basics: Code Edit: VI
- Infrared Basics: Code Edit: VI
- Infrared Basics: Code Edit: VI



Thecasesolutions.com First Deployment

First Deployment

- First Deployment
- First Deployment
- First Deployment



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Kyle Evans at Ruffian Apparel: Staffing a Retail Establishment

Concepts

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- Introduction
- Augmented Reality
- Why
- Scene Generator
- Tracking System (Fusion & D2D)
- Display
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AR Cont. Components

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- 3 Components of AR
- Scene Generator
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- Display



Scene Generator

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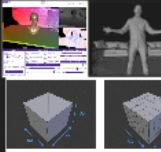
- Yace Kinect V2 from Microsoft
- 25 points of the human body
- hand gestures, speech and infrared depth
- 3 Dimensional data points called Meshes
- Reconstructs real world with 8 metrics



Kinect Fusion

Thecasesolutions.com

- Kinect Fusion CF
- reconstructs a dense surface model
- Word holds depth data over time from multiple viewpoints
- Multiple viewpoints of the objects/environments averaged together into a single reconstruction
- Think of a large virtual cube in space on top and beside other cubes



Introduction

Thecasesolutions.com

My names Josh Couturier and my new media capstone is a research project on augmenting a fitting room experience to reinvent retail for the future.



Augmented Reality

- Thecasesolutions.com
- Around for 40 years
- Head-mounted displays
- Mobile phones
- Green Screens (example:weather men)
- Terminator
- Iron Man



Why?

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- The United States has a \$131 Billion clothing market.
- Online retail sales reached \$210.6 Billion last year
- In a study of 3000 consumers, 67% say they bought clothing last year online
- 37% of consumers said they'd purchase more frequently if they had "Virtual Try-on" abilities



Kinect Fusion Cont.

- Prototype Rules
- arm length distance
- 572 "pixels per meter"
- side/front scan is 18 inches away from the sensor
- Estimate using division to find the width range from



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Thecasesolutions.com Introduction

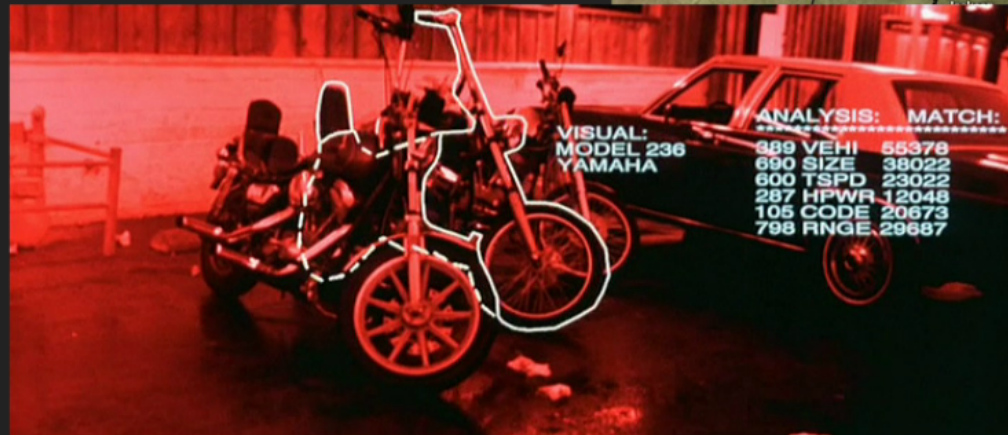
My name is Josh Couturier and my new media capstone is a research project on augmenting a fitting room experience to reinvent retail for the future.



Augmented Reality

Thecasesolutions.com

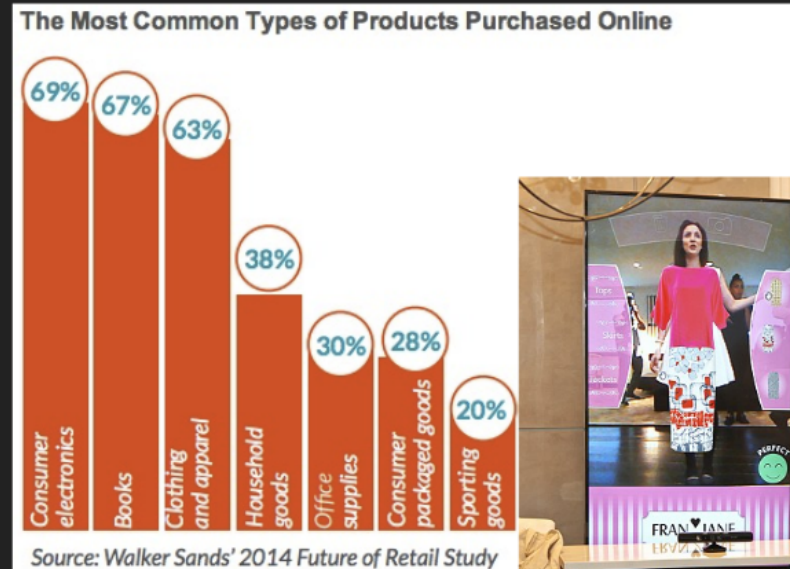
- Around for 40 years
- Head-mounted displays,
- Mobile phones
- Green Screens (example: weather men)
- Terminator
- Iron Man
- Predator



Why?

Thecasesolutions.com

- The United States has a \$331 Billion clothing market.
- Online retail sales reached \$210.6 Billion last year
- In a study of 1000 consumers, 63% say they bought clothing last year online
- 37% of consumers said they purchase more frequently if they had “visual try-on abilities”
- Bonds between Brand and Consumer push Online Sales (Advertisements on Social Media)



AR Cont. Components

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3 Components of AR

- Scene Generator
- Tracking System
- Display



```
File Edit View Refactor Project Build Debug Team Data Tools .NET Reflector Test Analyze Window Help
Debug Any CPU Document
New Work Item
UserProfileProperties.xml Program.cs X
UserProfileProperties.xml
Server Explorer Toolbox
UserProfileProperties.xml
using System;
using Microsoft.Office.Server.UserProfiles;
using Microsoft.SharePoint;
using Microsoft.SharePoint.Taxonomy;
using System.Xml;
using System.Collections;

namespace UserProfileProperties
{
    class Program
    {
        static void Main(string[] args)
        {

            string str = "UserProfileProperties.xml";

            XmlDocument doc = new XmlDocument();
            doc.Load(str);
            Console.WriteLine(doc.FirstChild.Name);

            XmlNode xmlNode = doc.DocumentElement;

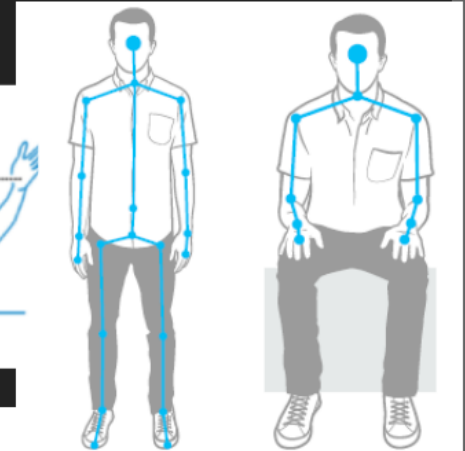
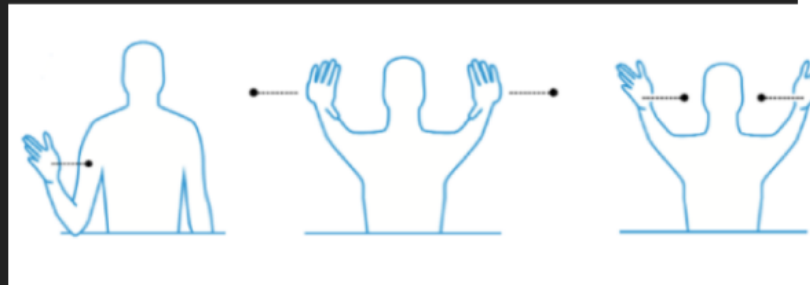
            XmlNodeList propertiesXmlNodeList = doc.GetElementsByTagName("Properties");
            Console.WriteLine(propertiesXmlNodeList.Count);
        }
    }
}
```

Scene Generator

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Xbox Kinect V2 from Microsoft

- 25 points of the human body
- hand gestures, speech and infrared depth
- 3 Dimensional data points called Voxels
- Reconstructs real world within 8 meters.

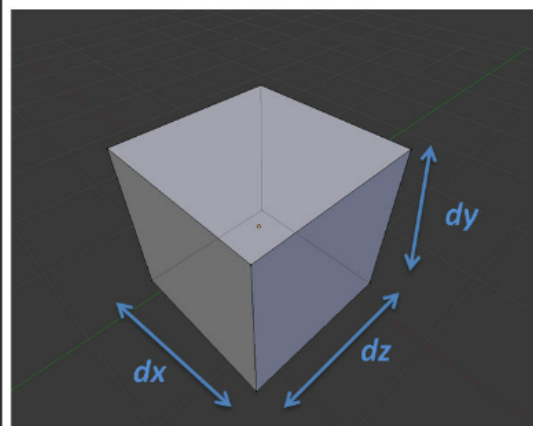
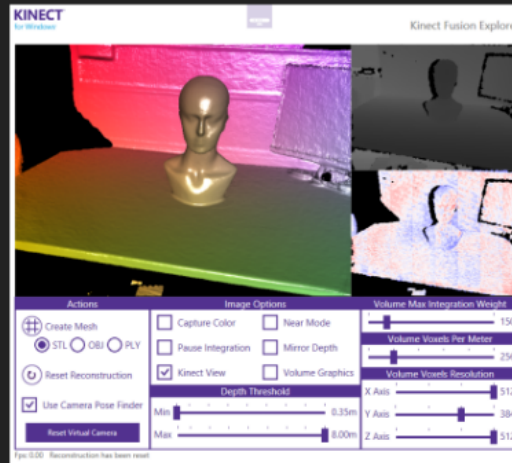


Kinect Fusion

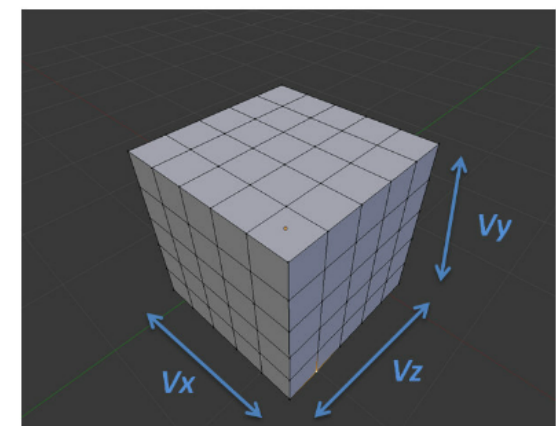
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Kinect Fusion C#

- reconstructs a dense surface model
- Voxel holds depth data over time from multiple viewpoints
- multiple viewpoints of the objects or environment averaged together into a single reconstruction
- Think of a large virtual cube in space on top and beside other cubes



$$dx = dy = dz = 3 \text{ [meters]}$$



$$Vx = Vy = Vz = \{32, 64, 128, 256, 512\} \text{ [voxels]}$$