Spatial Media

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Wednesday 6:30pm - 9:00pm
Thursdays 9:30am - 12:00pm

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Essential C++

A class is an object that contains variables and methods for altering those variables.

Class variables and methods must be declared in the class declaration, in the header (.h) file.

Method definitions go in the .cpp file. The .cpp file must include the .h file.

Class variables and methods may be public, private or protected.

Essential C++

Class declaration in car.h:

```
class car
{
public:
      car( float T, float M );     // constructor
      ~car();                      // destructor

      float getMaxRange();         // method declaration

      float TankSize;              // class variable declaration
      float MPG;
};
```

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Essential C++

Class definition in car.cpp:

```
#include “car.h”

car::car( float T, float M ) {
      TankSize = T;
      MPG = M;
}

car::~car() {
}

float car::getMaxRange() {
      float distance = TankSize * MPG;
      return distance;
}
```

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Computer Vision (1 of 3)

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Why Computer Vision?

Cameras are powerful sensors

Cameras are cheap

Cameras see what you see

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Why Not Computer Vision?

Cameras do not see all that well

Computers are not all that smart

Programmers are not all that smart

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Computer Vision requires multiple stages:

1. Image Processing (low level)

2. Object Identification (mid level)

3. Feature Analysis / Recognition (high level)

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Image Representation (1/2)

An image composed of W x H pixels

Most image formats are row-first

All images are really one-dimensional, one row follows the next

Must correctly index into image to access as two-dimensional object

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Image Representation (2/2)

The index is the number in brackets used in accessing arrays, e.g. myArray[20]

To access pixel (X,Y) in a WxH image...

index = Y*W + X;

pixelValue = image[index]

For color images: index = (Y*W + X)*3