Opening Exercise

Enlarge this unofficial photo of me to a more useful size...
What Does This Method Do?

```java
public void mysteryMethod()
{
    int red, green, blue;
    for ( Pixel p : this.getPixels() )
    {
        red   = p.getRed()  / 2;
        blue  = p.getBlue() / 2;
        green = p.getGreen();
        green = green - (green - 102)/2;
        p.setColor( new Color( red, green, blue ) );
    }
}
```
The Guarded Action

manipulate a pixel
only if
it satisfies a particular condition

the if statement

if ( condition is true )
take the action
Dimensions of Changing Colors

the value of the color to match

the closeness to the color to count as a match

the magnitude of the change
Quick Exercise

We have seen what happens when we apply an image like `reduceRedeye()` to a whole image...

How can a program like Photoshop remove red *only* from the eyes?
Finding Objects in Images

Boundaries appear when neighboring pixels have very different colors.

This is the task of edge detection.
The Alternative Action

Idea

manipulate a pixel
in one way
if it satisfies a particular condition
or in another way
if it satisfies a particular condition
The Alternative Action

Implementation

the if-else statement

if ( condition is true )
    take one action
else
    take the other action
An Application of Edge Detection

computer vision