

COS 426 Precept 1

Agenda:

- Introduction to C++
- Assignment 1 Part A

Introduction to C++

- Toy program: **Buffon's needle**
- Syntax and style
- Classes
- Inheritance
- Polymorphism
- Makefile

Assignment 1 Part A

- R2Pixel
- R2Image
- Extract channel
- Makefile
- Writeup
- Submitting

R2Pixel

- Four channels (RGBA) stored as an array of doubles:

```
class R2Pixel {  
    public: ...  
    private:  
        double c[4];  
};
```

- Example usage:

```
R2Pixel p(0.5, 0.5, 0.5, 1.0);  
p.SetRed(1.0);  
double r = p.Red();  
p *= 0.5;
```

R2Image

- 1D array of pixels starting from lower left, in row-major order:

```
class R2Image {  
    public: ...  
    private:  
        R2Pixel *pixels;  
        int npixels;  
        int width;  
        int height  
};
```

- Example usage:

```
R2Image im("image.jpg");  
R2Pixel p = im.Pixel(50, 100);  
im.Brighten(1.5);  
im.Blur(2.0);
```