Opening Exercise

Reduce my official UMPR photo to a manageable size...

Media Operations

copy all
copy region
reflect
rotate
blend
scale

The Programming Tool

manipulate pixels by their position in the image

the nested **`for`** loop

```
for (int x = startX; x < lastX; x++)
  for (int y = startY; y < endY; y++)
    operate on the pixel at ( x, y )
```

Another Exercise

All of of copy operations have copied rectangles.

Write a method named

```
copyRightTriangle( int x, int y, int width )
```

which copies the triangle
below the diagonal of a square.

An Example

(70, 10), width = 185

You may assume we are copying to the same location in a new image.

Generalizing Our Copy Operations

How could we copy a triangle from a *rectangle*?

How could we copy some other triangle?

How could we copy a *circular* region?

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... geometry and algebra!

Cool Image Effects in Homework 1

"live" repaint

a dotted line

use of colored blocks

Homework 2

What are the high-level operations?

Design your solution in this way:

- create an empty method for each operation
- design, implement, and test each method one at a time