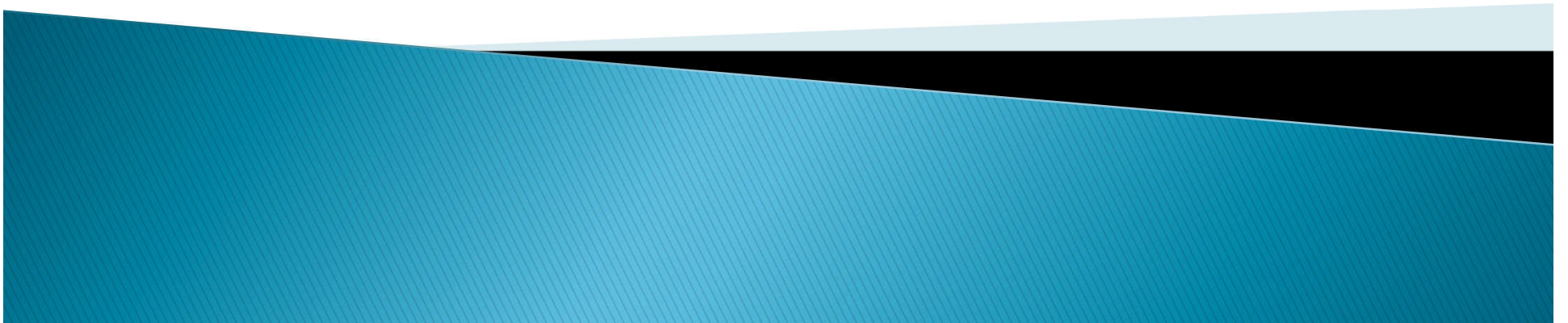
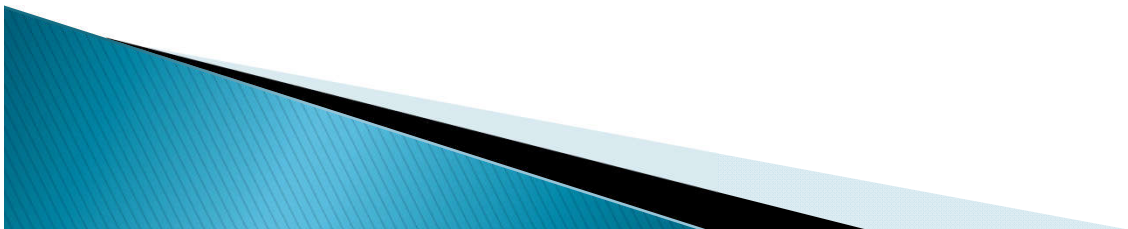


# EECS101 Discussion 1



# Part I: Logistics

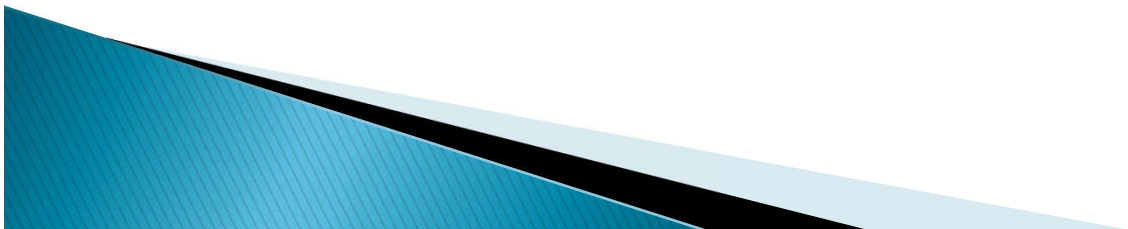
- ▶ **Discussions**
  - **At beginning of each lab session**
- ▶ **Course Website**
  - <https://eee.uci.edu/16w/18190/>
- ▶ **Office hours**



# Part II: System Setup

## ► Image Viewer

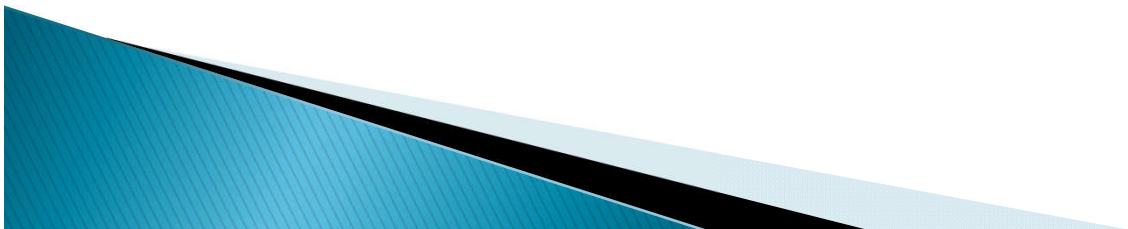
- PC
  - IrfanView: <http://www.irfanview.com/>
  - For image extensions, at least select RAS
  - After installation, if the software complains about not finding plugins, go to the website and download the plugins and install.
- Mac
  - Preview
- Unix or Linux
  - xv
  - E.g., %xv filename



# Image Format

## ▶ RAW & RAS

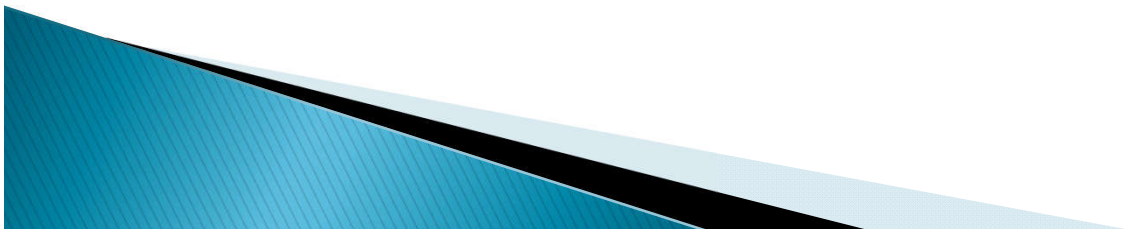
- Images given are in raw format. Raw images are not readily displayable
  - Open the two formats in IrfanView
- A raw image is converted to a ras image
  - It is done in C programs.
- **All images submitted must be in ras or other displayable formats. Images in raw will not be graded.**



# Image Size

For both input and output images

- ▶ hw1:  $128 \times 128$
- ▶ hw2:  $100 \times 100$
- ▶ hw3:  $512 \times 512$
- ▶ hw4 & hw5:  $640 \times 480$



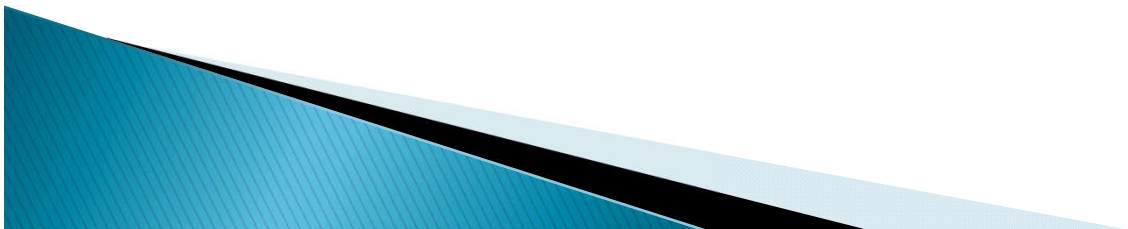
# C Language

## ▶ Tutorial

- <http://www.cprogramming.com/tutorial/c-tutorial.html>
  - New to programming: read Introduction and Basic C Features, pointers, arrays and C File I/O
- <http://www.loirak.com/prog/ctutor.php>

## ▶ Compiler

- PC: Microsoft Visual Studio Express
  - hw1-bonus.c demo
- Mac
  - Eclipse
- Linux/Unix: gcc
  - `%gcc -o new_file source_file.c`
  - Gcc tutorial
    - <http://pages.cs.wisc.edu/~beechung/ref/gcc-intro.html>



# Part III: Homework 1

- ▶ Perspective Projection

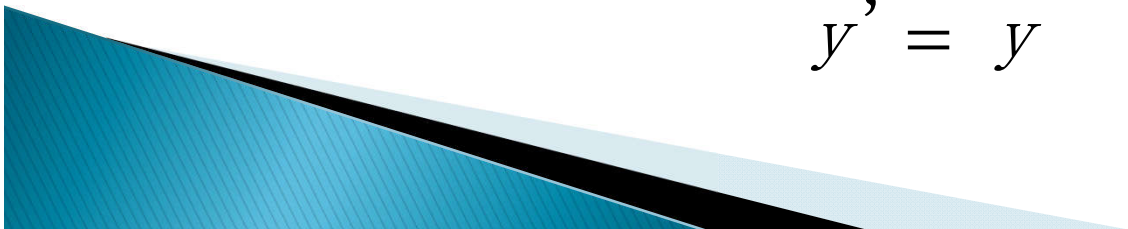
$$x' = \frac{f' x}{z}$$

$$y' = \frac{f' y}{z}$$

- ▶ Orthographic Projection

$$x' = x$$

$$y' = y$$



# Programming

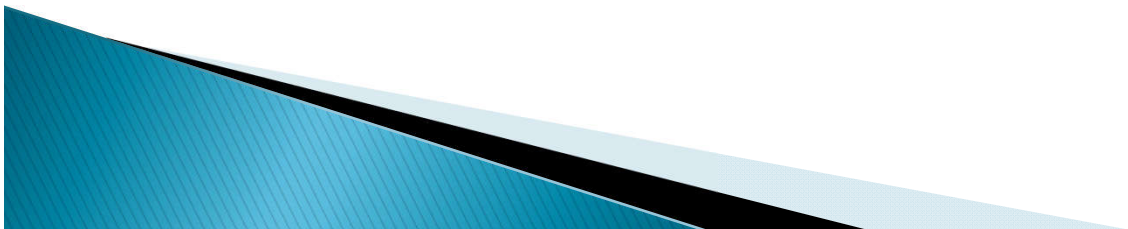
- ▶ Build a new project, add hw1.c
- ▶ Modify based on hw1.c
- Understand the code
  - What does the main program do
  - What do the two functions do
    - plot\_logical\_point()
    - plot\_physical\_point()
- Where to modify
  - The parametric and projection equations
- How
  - Implement the parametric and projection equations





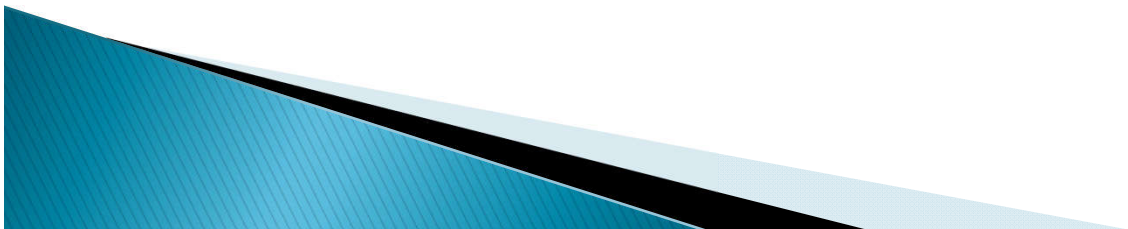
# Bonus Question

- ▶ Write a description to explain how hw1-bonus.c works. Specifically, explain what each function call (in 1-2 sentences, excluding print statements) in the main function does and how it achieves the effect by examining its arguments, return value and functionality.



# Submission Guideline

- ▶ Make sure all generated images are in RAS
- ▶ Put all your images in a single doc or pdf file and specify which one is which.
- ▶ Submit the file and your written answer to EEE by the deadline.



# Grading Criteria

- ▶ Total 100 points
  - 90 points for all written problems' questions
    - 10 pts for each problem
      - Partial credit will be allowed for questions per problem.
    - 3 pts for each image generated correctly.
      - 2 images for problem 1 (demo, but still submit them)
      - 6 images for problem 2 (submission)
      - 12 images for problem 3 (submission)
  - 10 points for submitting the program
- ▶ 20 points for the bonus question

