

ECPS 203

Discussion

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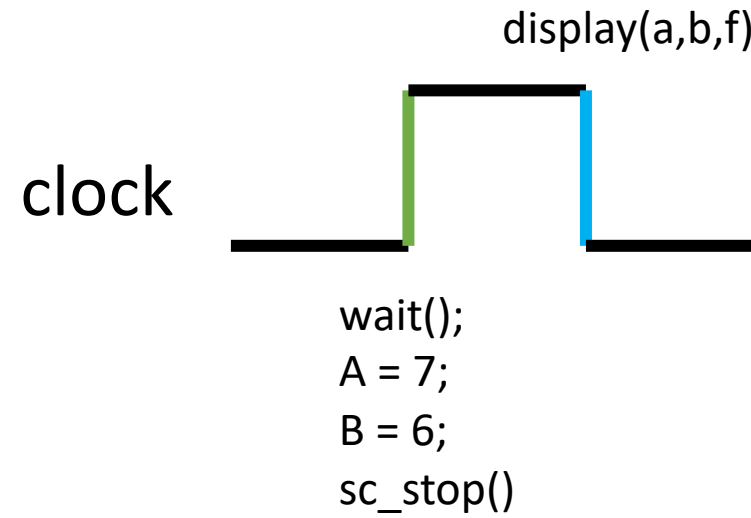
Agenda

1. Review of Assignment 3
2. Assignment 4

Mistake

- Early exit of simulation

Early exit



- In this case, `display(a,b,f)` will not execute because simulation stops on the pos edge of clock

Assignment 4

due: Wednesday 6:00 p.m. next week

Assignment 4

1. Extract 30 video frames from the movie file
2. Convert the color frames to grey-scale images in PGM format
3. Recode your Canny C++ model to process a sequence of images

Extract frames

1. in hw4 directory:

- `ln -s ~ecps203/public/DroneFootage DroneFootage`
- this means: create a folder DroneFootage in hw4, and it is a shortcut to ~ecps203/public/DroneFootage

2. create the video folder, which will contain all the frames you extract

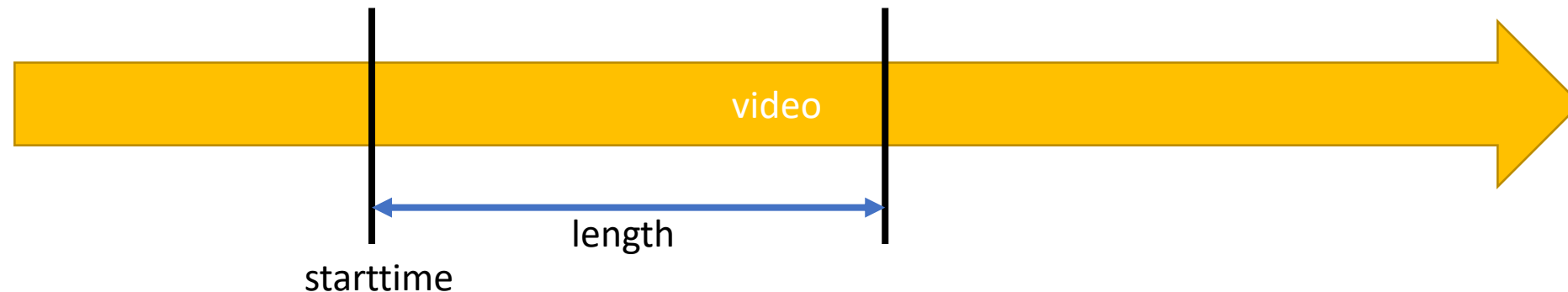
- `mkdir video`

3. go into video:

- `ln -s ../DroneFootage/DJI_0003.MOV`
- this links DJI_0003.MOV to your video folder

Extract frames

1. use the **ffmpeg** tool to extract frames
 - `/opt/pkg/ffmpeg/bin/ffmpeg -ss starttime -t length -i video.mov -r ratio outputfile.png`
2. `starttime`, `length`, `ratio`, `video.mov`, `outputfile.png` are parameters you need to set



Convert images to grey-scaled

- png -> pnm -> pgm
 1. pngtopnm
 2. ppmtopgm

Process a stream of video frames

- Currently, your canny only processes one single image
- Now, you need it to process 30 images
- Embed your code into a *for* loop

```
void main(){  
    filename="golfcart.pgm";  
    read_image();  
    canny();  
    write_image();  
}
```

old canny.cpp

```
void main(){  
    for(i = 1 to 30){  
        sprintf (filename,"video/Engineering%03d.pgm", i);  
        read_image();  
        canny();  
        write_image();  
    }  
}
```

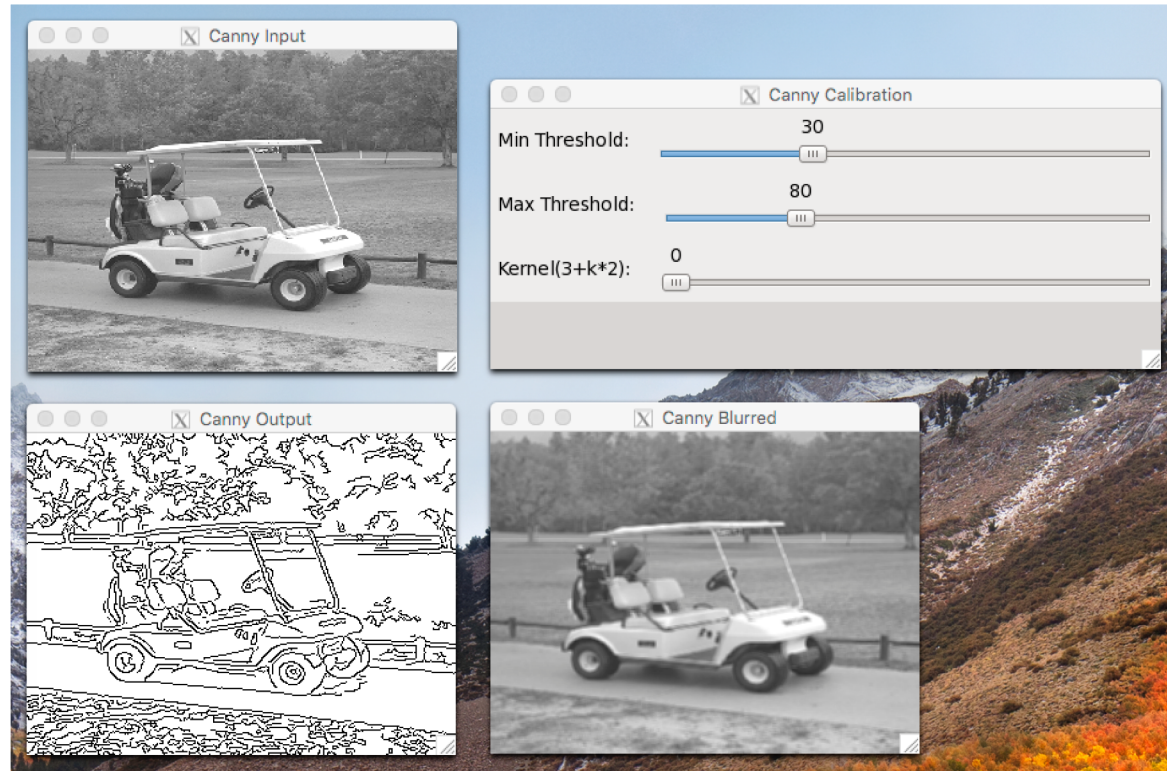
new canny.cpp

Process a stream of video frames

- size parameters need to change
 1. COLS
 2. ROWS

Tune other parameters

- We provide an interactive tool for you to visualize the effect of different parameters
- `~ecps203/bin/CannyCalibration ImageFileName`



Compile

- compile:
 - `g++ Canny.cpp -o Canny`
- No warnings, no errors
- Before running the example, remember to change stack size of your shell to avoid stack overflow

Submission

- Canny.cpp
- Canny.txt: troubles you met