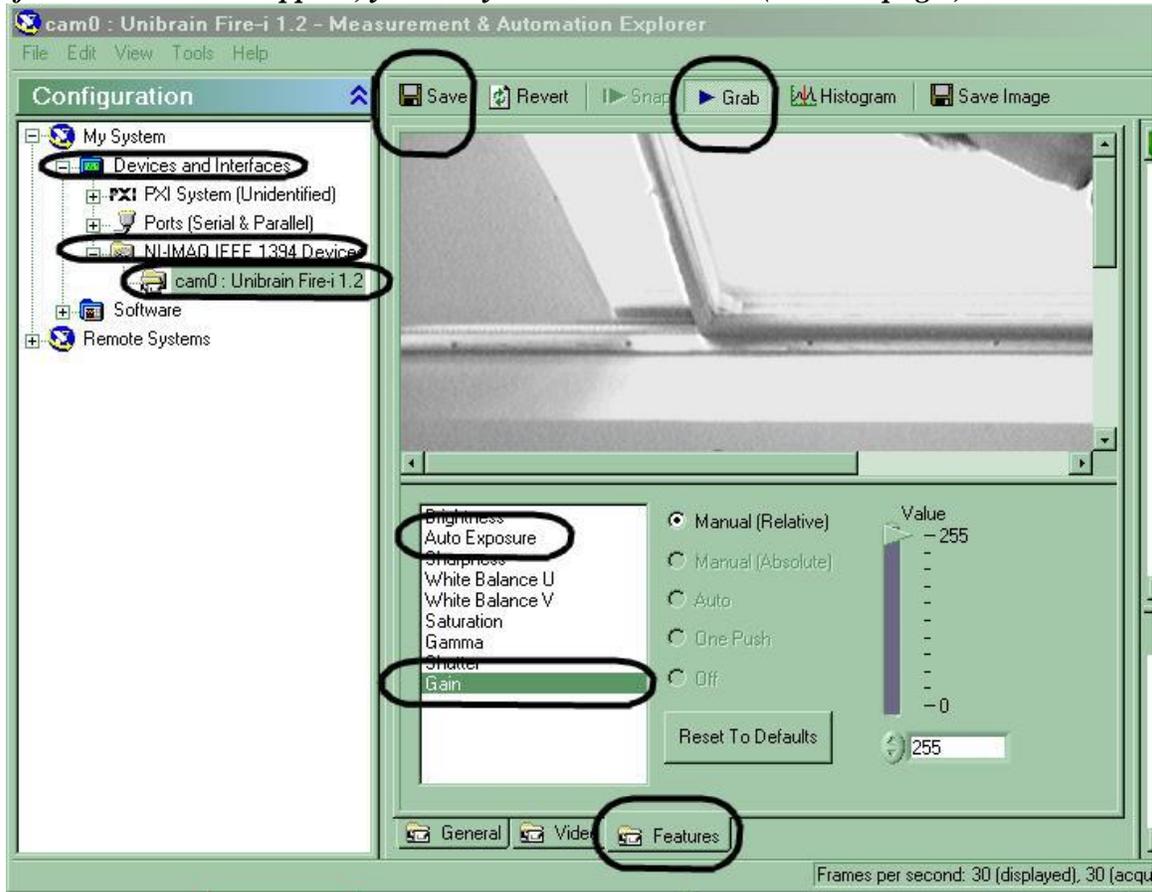


## To install a camera:

1. Hook up new camera to firewire cable.
2. Launch the “Measurement & Automation” application (icon on desktop)
3. On the left-hand panel (*shown below*), expand “Devices and Interfaces”
4. On the same panel, expand “NI-IMAQ IEEE 1394 Devices”

*MAX has a generic camera setup initially; this needs to be switched to the Unibrain camera by right clicking on the device and selecting the NI-IMAQ driver using the menu.  
If a device does not appear, you likely have a bad camera (see next page.)*



5. On the same panel, click the icon for the camera (“Unibrain cam0:...”)
6. Click GRAB (along the top, shown above) to see what the camera sees
7. Click the Video tab (along the bottom, next to the circled features tab)
8. Change Video Mode by selecting the last option in the pull down menu (640x480 Y (Mono8)(30fps))

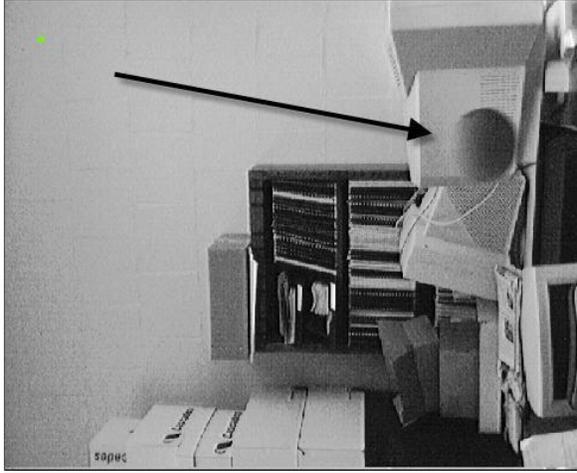
*To help your students get useful data from the video camera, it may be necessary for you to adjust additional camera settings. (These settings should be stable, but may change when a camera is unplugged from its computer.)*

9. Click the FEATURES tab (along the bottom, shown above)

*In the picture below, “gain” is selected, and is set to its maximum value of 255.*

10. Set GAIN to its MAXimum value (this may cause a “washed-out” image).
11. Set AUTO EXPOSURE to the MINimum value that shows a useful image (depending on camera and lighting, 180 or below may be possible).
12. Click SAVE (top left) to save the settings.
13. Exit the “Measurement & Automation” application.

## To install a camera:

<p><b>“Good” camera settings</b></p> <ul style="list-style-type: none"><li>• short Exposure time</li><li>• high amplification (Gain)</li></ul> <p>Motionless objects may look grainy; objects in motion have well-defined edges (The ball below has fallen through the entire frame).</p>	<p><b>“Bad” camera settings (factory default)</b></p> <ul style="list-style-type: none"><li>• long Exposure time</li><li>• low amplification (Gain)</li></ul> <p>Motionless objects look nice; motion causes blur (The blurred ball below has fallen only a short distance).</p>
	

## To check to see if a camera is bad:

1. Hook up camera to firewire cable.
2. Launch the “Measurement & Automation” application (icon on desktop)
3. On the left-hand panel, expand “Devices and Interfaces”
4. On the same panel, expand “NI-IMAQ IEEE 1394 Devices”

*If a device (camera) does not appear, you have a bad camera, cable or firewire card. Check the cable, making sure the connectors are intact and not plugged by debris. Look at the firewire card in the back of the computer - try to use the port that looks best. If the camera still does not work, get a new camera and start over. If the new camera doesn't work, reboot the computer and try again, possibly with a third camera. You can also use the TA computer and see if the camera will work on that machine. Remember to submit an electronic lab problem report form about any unresolved problems and bad cameras.*