X2D

A 2D Image Analysis Program Demo

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1 The X2D GUI-Based 2D Image Analysis Package

X2D is a GUI-based 2D image analysis package/demo under development. Currently, basic image processing methods such as image editing, filtering, FFT/IFFT, up/down sampling, shgifting, logarithm, and others are implemented.

The control panel for X2D is shown in Fig. 1. The three main image areas at the bottom are the input, temp, and output image areas. The seven buttons above the output image allow transfer between any of the three image areas. Images can also be dropped/retrieved into/from the five temporary storage areas in the upper right (they are automatically rescaled on transfer).

Above the temp image is the area for typing in the input/output filenames. Image dimensions are entered right below the filename area, with provision to step through three-dimensional images in a slice-by-slice fashion. Below the temp image are readouts for pixel position, pixel digital value, real part, imaginary part, and magnitude. Full complex floating point representation is kept for all images, and the choice of appropriate rendering is automatic. The readout also automatically switches to frequency coordinates in cycles-per-pixel for frequency-domain images (tagged as such).

The temp image is also shown with two selected regions colored green and red. These may be used for image editing or to mark different regions in an image.

The output image has a thresholding capability with the slider below it. Above the output image are several drop-down menus for various spatial, spatial-frequency, and image-creation functions.

Presently, the only input image file format supported is a raw-data, 8 bit gray scale, format with each byte representing the gray value of a pixel.

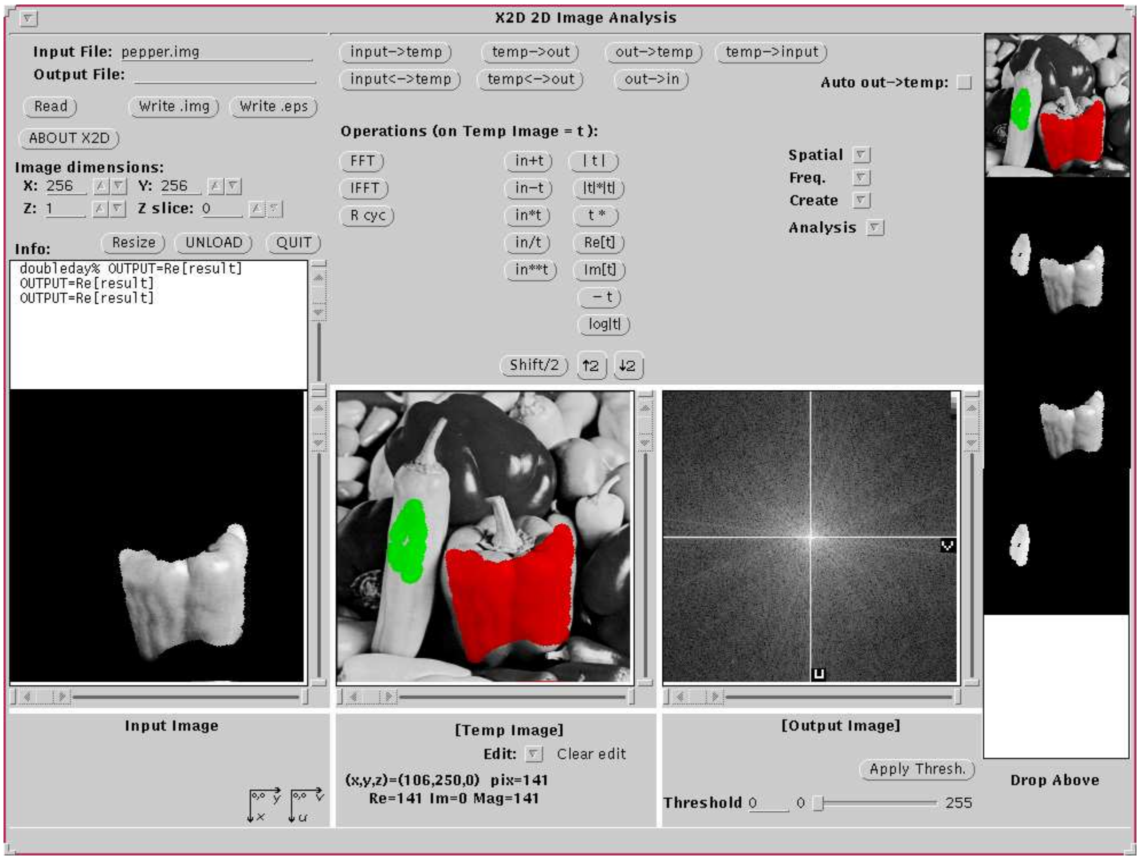

Figure 1: X2D GUI interface.

To use x2d:

1. Run the executable (x2d.solaris) at the command line on a Solaris machine.
2. Set the size of the image to $x = 256$, $y = 256$, $z = 1$.
3. Type in the full filename of the image file (pepper.img) in the read line.
4. Click the read button.
5. Click the "input $->$ temp" button to transfer to temp.
6. Click the right mouse button in the temp window, then click it in one of the small drop zones to copy temp to a drop image (do the reverse to load temp).
7. Click the "FFT" button to take the FFT of the image.