

Parallel Processing

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Home assignment #4

Subject: HTCondor

Write a short HTCondor submit file that will launch 100 **Matlab** or **Octave** jobs. Each job will create a corresponding PNG image file of the Mandelbrot set using $\$(Process)$ for the iteration argument of the Matlab/Octave code which is given below:

```
function mandelbrot(niter)
n = 800;
x0 = -2;
x1 = 1;
y0 = -1.5; y1 = 1.5;
[x,y] = meshgrid(linspace(x0, x1, n), linspace(y0, y1, n));
c = x + 1i * y;
z = zeros(size(c));
k = zeros(size(c));
for ii = 1:niter
    z = z.^2 + c;
    k(abs(z) > 2 & k == 0) = niter - ii;
end
set(gca, 'visible', 'off') % Guy: graphics is turned off, it goes only to the pdf
imagesc(k),
colormap hot
axis square
fn=sprintf('mandel_%d.png',niter);
print(gcf, '-dpng', fn);
```

The 100 computations should study the fractal shape for 0,...,99 iterations.

The HTCondor submit-file should also create error, log and output files.

Submit to the TA:

- 1) Your HTCondor submit file.
- 2) A few examples of the png output images.
- 3) Output of: `grep termination *.log` to verify that all the jobs were normally terminated.
- 4) Output of any error files if exist.
- 5) A screen capture showing the output of `condor_q` while your jobs are being executed.

Reference: <https://stackoverflow.com/questions/20844510/coloring-the-mandelbrot-set-in-matlab>

Due: End of the semester

version 2.