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Simulation Driver

AEM 4305: Spacecraft Attiude Dynamics and Control Written by Garrett Ailts

```
clear variables, close all
```

Add Directories to Path

```
addpath(genpath('utils/'));
addpath(genpath('utils/Provided_Functions/'));
addpath(genpath('sims/'));
addpath(genpath('params/'));
addpath(genpath('figs/'));
addpath(genpath('docs/'));
addpath(genpath('data/'));
addpath(genpath('models/'));
```

Choose Simulation

```
simType = input('Which simulation would you like to run?\n','s');
params = struct();
sc = struct();
Earth = struct();
if strcmp(simType,'Main Sim')
    % Choose parameter files
    simPfile = 'simParams.txt';
    scPfile = 'scParams.txt';
    earthPfile = 'earthParams.txt';

    % Load params to objects
    params = loadParams(simPfile,params);
    sc = loadParams(scPfile,sc);
    Earth = loadParams(earthPfile,Earth);

    params.sc = sc;
    params.Earth = Earth;
end
if strcmp(simType,'Point Mass Orbit')
    % Choose parameter files
    simPfile = 'simParams.txt';
    scPfile = 'scParams.txt';
```

```
    earthPfile = 'earthParams.txt';

    % Load params to objects
    params = loadParams(simPfile,params);
    sc = loadParams(scPfile,sc);
    Earth = loadParams(earthPfile,Earth);

    params.sc = sc;
    params.Earth = Earth;
end
```

Run Simulation

```
if strcmp(simType, 'Main Sim')
    results = mainSim(params);
end
if strcmp(simType,'Point Mass Orbit')
    results = pointMassOrbit(params);
end
```

Save Results

```
for lv1 = 1:100
    sname = sprintf('sim%d',lv1);
    if ~exist(sname,'file')
        fname = sprintf('data/output/sim%d.mat',lv1);
        save(fname,'results');
    end
end
```

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