# **DETERMINING ORIENTATION USING IMU SENSOR FUSION**

ld = load("rpy\_9axis.mat");

acc = ld.sensorData.Acceleration;

gyro = ld.sensorData.AngularVelocity;

mag = ld.sensorData.MagneticField;

pp=poseplot;

qe = ecompass(acc, mag);

for i=1:size(acc,1)

set(pp,"Orientation",qe(i))

drawnow limitrate

end

ifilt = imufilter(SampleRate=ld.Fs);

for i=1:size(acc,1)

qimu = ifilt(acc(i,:),gyro(i,:));

set(pp,"Orientation",qimu)

drawnow limitrate

end

cfilt = complementaryFilter(SampleRate=ld.Fs,HasMagnetometer=false);

for i=1:size(acc,1)

qimu = cfilt(acc(i,:),gyro(i,:));

set(pp,"Orientation",qimu)

drawnow limitrate

end

ifilt = ahrsfilter(SampleRate=ld.Fs);

for i=1:size(acc,1)

qahrs = ifilt(acc(i,:),gyro(i,:),mag(i,:));

set(pp,"Orientation",qahrs)

drawnow limitrate

end

cfilt = complementaryFilter(SampleRate=ld.Fs);

for i=1:size(acc,1)

qahrs = cfilt(acc(i,:),gyro(i,:),mag(i,:));

set(pp,"Orientation",qahrs)

drawnow limitrate

end

