

LOADING AND FILTERING

```
subject = [1 2 3];
peakforces = zeros(2,3);

Fs = 2400;

for x = 1:length(subject)
    trial = sprintf('S%d_Walk_PSL.mat', subject(x));
    load(trial);

    for m=1:3
        [trial_filt(:,m)]=filterdata1( (data(:,m)), Fs, 5, 'low');
    end
end
```

STANCE PHASE

```
stance = [];
for n=1:length (data)
    if data (n,3)>18
        stance (n,1:3) = data(n,1:3);
    else
        stance (n,1:3) = NaN;
    end
end

new_stance=[];
for a = 1:3
    new_stance(:,a)=stance(isfinite(stance(:,a)),a);
end

increment = length(new_stance)/101;
query_points = 1:increment:length(new_stance);
interpolated_stance = interp1(new_stance, query_points);
```

PEAK FORCE

```
[peakforce_value, peakforce_index] = max(interpolated_stance(:,3));

for acondition = 1:2
    peakforces(acondition,x) = peakforce_value;
end
```

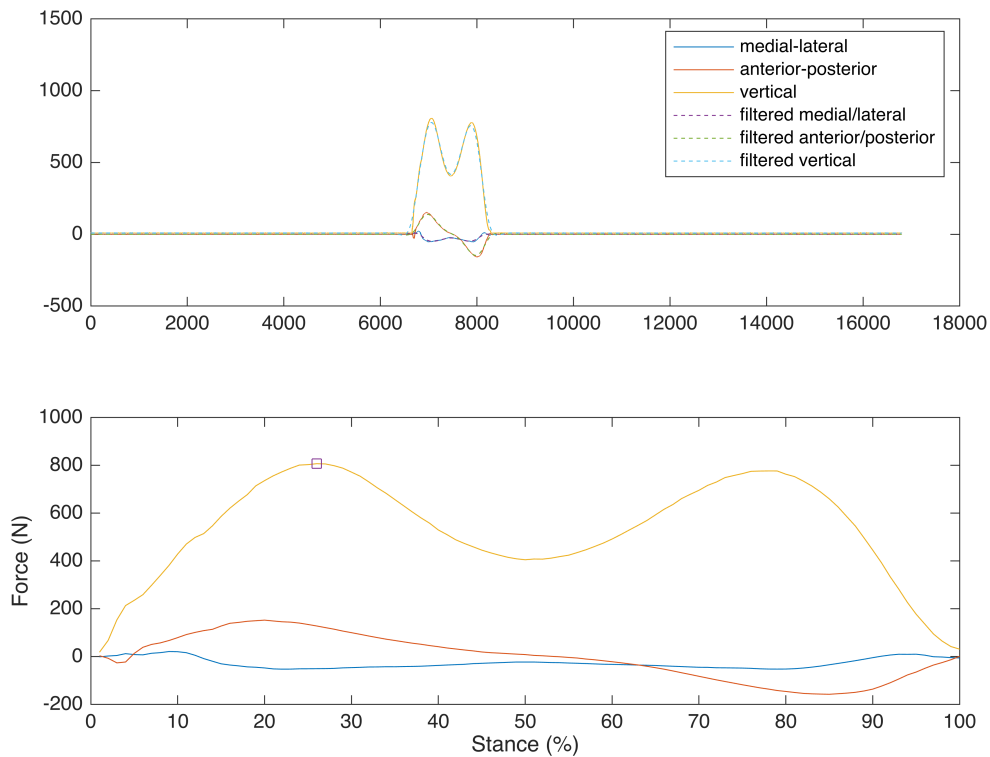
```

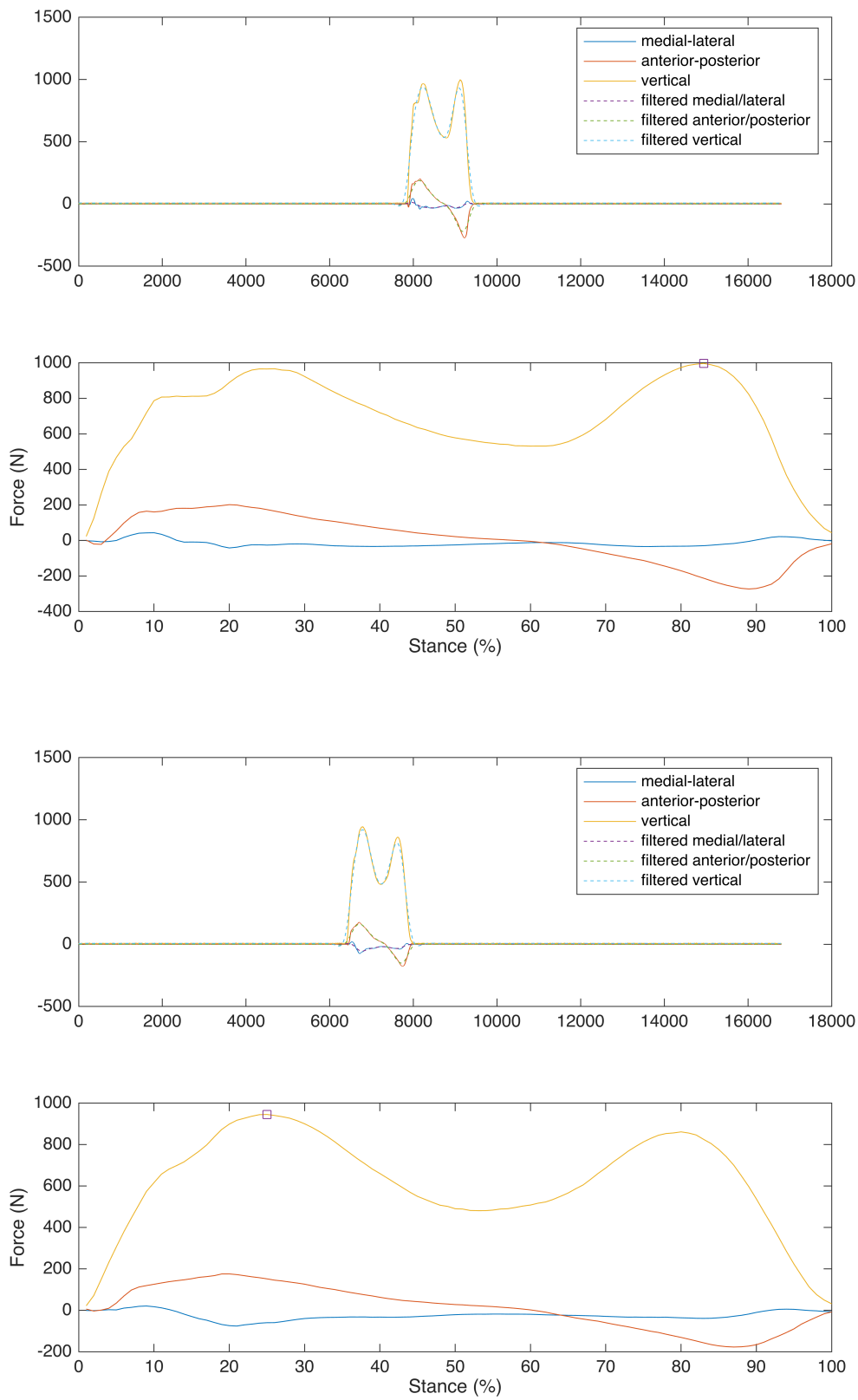
figure(x)
subplot(2,1,1)
plot(data)
ylim ([-500 1500]);
hold on
plot(trial_filt,'--')
legend ('medial-lateral', 'anterior-posterior', 'vertical', 'filtered
medial/lateral',...
'filtered anterior/posterior','filtered vertical')
hold off

subplot(2,1,2)
plot(interpolated_stance)
xlim ([0 100]);
xlabel ('Stance (%)'); ylabel ('Force (N)');
hold on
plot(peakforce_index, peakforce_value, 'Marker', 'square')
hold off

end

```





FOR LOOPS

```

subject = [1 2 3];
condition = {'PSL', '90PSL'};

peakforces = zeros(2,3);

Fs = 2400;

for x1 = 1:length(subject)
    for y1 = 1:length(condition)

        trial = sprintf('S%1d_Walk_%s.mat', subject(x1), condition{y1});
        load(trial);

        for m=1:3
            [trial_filt(:,m)]=filterdata1((data(:,m)), Fs, 5, 'low');
        end

        [peakforce_value, peakforce_index] = max(data(:,3));

        peakforces(y1,x1) = peakforce_value;

    end
end

```

SUMMARY STATISTICS

```

subject = [1 2 3];
condition = {'PSL', '90PSL'};
type = {'Walk', 'Run'};

peakforces = zeros(3,4);

Fs = 2400;
% t = 0:length(data);

% load('S1_Run_PSL.mat');
%
% [Y, power, freq] = myFFT(data, t, Fs);
% plot (power);

for x2 = 1:length(subject)
    for z2 = 1:length(type)
        for y2 = 1:length(condition)

            trial = sprintf('S%1d_%s_%s.mat', subject(x2), type{z2},
condition{y2});
            load(trial);

```

```

        if z2 == type{1}
            for m=1:3
                [trial_filt(:,m)]=filterdata1((data(:,m)), Fs, 5,
'low');
            end
        elseif z2 == type{2}
            for m=1:3
                [trial_filt(:,m)]=filterdata1((data(:,m)), Fs, 10,
'low');
            end
        end

        [peakforce_value, peakforce_index] = max(data(:,3));

        if z2 == 1
            peakforces(x2,y2) = peakforce_value;
        elseif z2 == 2
            peakforces(x2,(y2+2)) = peakforce_value;
        end

    end
end
end

files = {'Walk_PSL', 'Walk_90PSL', 'Run_PSL', 'Run_90PSL'};

figure(4)
boxplot(peakforces,'Labels', {files})
ylabel('Peak Force(N)');

```

