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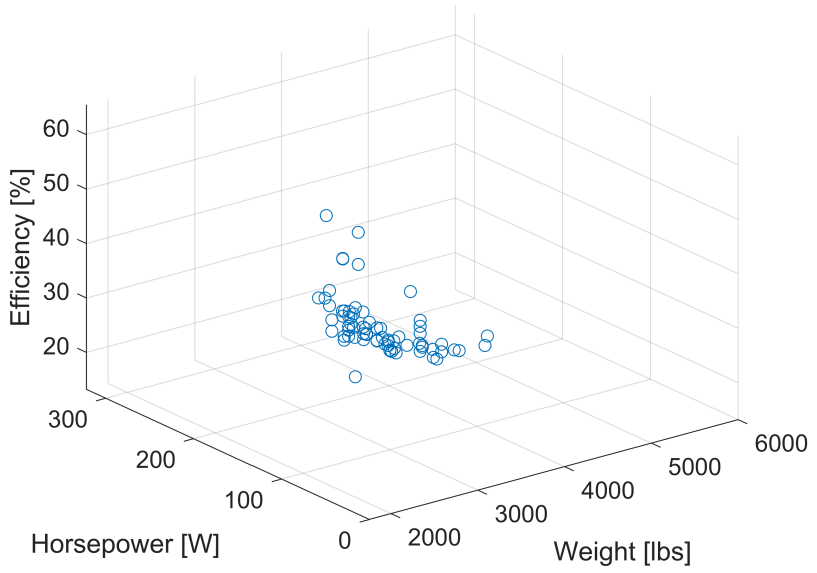
HW 7B: Problem 4

Part A

```
X = mpg.Weightlbs;
Y = mpg.Powerhorsepower;
Z = mpg.Efficiencympg;
scatter3(X,Y,Z)
xlabel('Weight [lbs]','fontsize',14);
ylabel('Horsepower [W]','fontsize',14);
zlabel('Efficiency [mpg]','fontsize',14);
set(gca,'fontsize',12);
```



Part B

```
A = [X Y ones(length(X),1)]; % create coefficient matrix for regression
B = Z;
soln = A\B;
```

$$f(x,y) = -0.0099 * x - 0.0210 * y + 66.8550$$

Part C

```
est = [3025 130 1]*soln; % estimate of foot length based on 1800mm stature and 480mm forearm le
```

```
scatter3(X,Y,Z)
hold on
scatter3(3025,130,est,180,'rp'); % add estimated point to plot
xlabel('Weight [lbs]','fontsize',14);
ylabel('Horsepower [W]','fontsize',14);
zlabel('Efficiency [mpg]','fontsize',14);
set(gca,'fontsize',12);
```