Progress Report 1

##### 10 December 2018

Completed 2 weeks of Andrew Ng Machine Learning course (Stanford) on coursera.

### Implemented

* Linear regression in 1 variable using normal equation
* Linear regression in 2 variable using normal equation
* Linear regression in 1 variable using gradient descent
* Joystick Motorcode – (tried various logic for motorcode, the final one is on github with commented explanations)

**Code at:** <https://www.github.com/bharathajay51/mrm-2020/tree/master/Abhiraj/>

##### Various ideas tried for motorcode

1. Hardcoding (would work but tedious)
2. Tried to find a relation between the polar coordinates of the joystick and the speeds of the motor (unable to find a relation, got confused as both radius and the angle contribute to the speeds of the motor)
3. Thought of the joystick as a combination of 2 joysticks, the y-axis just contributes to the speed and x-axis determines the turning character in the movement. (unable to define turning *character* mathematical) Thought about this because this is what we are trying to do, merging the R and L Joysticks into one (like used in video games, PS)
4. Tried few more random ideas. (Ex. tried to express the pwm value as a trigonometric function because the values looked like one, but the period of the function gets messed up at the x-y and x-y lines)
5. Implemented the final idea (based on observation), the steps are commented in the code on github. Tried this on (6 (forward, backward, PWM for 2 sets)) LEDs and it seems to work fine.