# MACHINE LEARNING 101

# What we will be covering today?

1. Jupyter Notebook
2. Numpy
3. Pandas
4. MatplotLib

Go to:
https://tinyurl.com/yarun8jc

# NumPy

Numerical Python

# Creating your array

1D array:  arr1 = np.array([1,2,3,4],dtype='int64')

2D array:  arr2 = np.array([(1,2,3,4),(5,6,7,8)])

3D array:  arr3 = np.array([[(1,2),(3,4)],[(5,6),(7,8)]])

# Inspecting your array

Array.shape

Array.size

Array.ndim

Array.type

# Initial arrays

Array of all zeros : **np.zeros((3,4))**

Array of all ones : **np.ones((3,4))**

Identity Matrix : **np.eye(3)**

Random array = **np.random.random((4,5))**

Arange : **np.arange(10,80,10)**

Reshape : np.arange(10,81,10).reshape(3,4)

# Arithmetic Operations

Element wise operations: a+b, a-b, a*b,a**2

Matrix Multiplication: a.dot(b)

Unary Operation:  a.sum(), a.max(), a.min(), a.T, a.sort()

a.sum(axis=0) (sum of each column)

a.min(axis=1) (min of each row)

a.sort(axis=1) (sort each row)

# Indexing, Slicing, Iterating

1D Array :

A[2] -> 2nd element

A[2:5] -> 2nd, 3rd, 4th element

A[start:end:jump]

2D Array:

A[2,3] -> 2th row, 3rd column

A[0:5,1] -> 0-5th element, 1st column

A[:,1] -> entire 1st column

# Iterating

Row-wise iteration -> for row in array:

Iterate over all element -> for element in array.flat: