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# -*- coding: utf-8 -*-
"""
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"""

#Plotting HotPlate Stuff
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#2/20/19
import numpy as np
import matplotlib.pyplot as plt
#=====#
#define data arrays
TempDataLists = [[] for i in range(0,25)]
TimeDataLists = [[] for i in range(0,25)]
#=====#
#read in data and assign to data arrays.
for i in range(1,26):
    with open('./NewDocs/TempData{}.txt'.format(i), 'r') as f:
        lines = []
        lines = f.readlines()
        temps = []
        times = []
        for n in range(len(lines)):
            stuff = lines[n].split(',')
            #only every 100th data point is used
            if n % 100 == 0:
                times.append(float(stuff[0].strip()))
                temps.append(float(stuff[1].strip()))
        for s in range(0,len(times)):
            TempDataLists[i-1].append(temps[s])
            TimeDataLists[i-1].append(times[s])
#=====#
map_list = []

for t in range(len(TimeDataLists[0])):
    temp_points = np.zeros([5,5])
    for q in range(0,5):
        y = q
        for w in range(0,5):
            x = w
            temp_points[x][y] = TempDataLists[x + 5*y][t]
    map_list.append(temp_points)

plt.figure(1)
hmap = plt.imshow(map_list[0], vmin=20, vmax=120)
plt.colorbar(hmap)

file_name = './Heatmaps/{:03d}_hotplate_heatmap.jpg'

for i in range(len(map_list)):
    fig = plt.figure()
    my_fig = fig.add_subplot(111,aspect='equal')

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hmap = plt.imshow(map_list[i], vmin=20, vmax=120)
plt.colorbar(hmap)
my_fig.set_xlabel('x-position')
my_fig.set_ylabel('y-position')
my_fig.set_title('Heatmap of Hotplate')
plt.savefig(file_name. format(i))
plt.close()
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