% clear ;clc;close all;

% Dirs = ["d=0","d=0.5","d=1","d=1.5","d=2","d=2.5","d=3",...

% "d=3.5","d=4","d=4.5","d=5","d=5.5","d=6","d=6.5",...

% "d=7","x=7.5","d=8","x=8.5","data1","d=9.5",... %读取data1

% "d=10","x=10.5","d=11","x=11.5","d=12",...

% "x=12.5","d=13","x=13.5","d=14","x=14.5",...

% "d=15","x=15.5","d=16"];

% dt2 = 51;

% % dt3 = 15;

% dt1 = dt2\*35;

% Data = zeros(length(Dirs),dt1);

% % DataMax = zeros(36,34);

% for i = 1:length(Dirs)

% % for j = 1:35

% % path = strcat(Dirs(i),'\',num2str(j),'.txt');

% path = strcat(Dirs(i),'.xlsx'); %扫描表格

% if exist(path,'file')

% data = load(path);

% Data(i,:) = data;

% % DataMax(i,j+1) = max(data(1,40:end));

% end

% % end

% end

% clear; clc; close all;

% Dirs = ["d=0","d=0.5","d=1","d=1.5","d=2","d=2.5","d=3",...

% "d=3.5","d=4","d=4.5","d=5","d=5.5","d=6","d=6.5",...

% "d=7","x=7.5","d=8","x=8.5","data1","d=9.5",...

% "d=10","x=10.5","d=11","x=11.5","d=12",...

% "x=12.5","d=13","x=13.5","d=14","x=14.5",...

% "d=15","x=15.5","d=16"];

% dt2 = 51;

% dt1 = dt2\*35;

% Data = zeros(length(Dirs), dt1);

%

% for i = 1:length(Dirs)

% path = strcat(Dirs(i), '.xlsx'); % 扫描表格

% if exist(path, 'file')

% data = readmatrix(path); % 使用 readmatrix 读取 Excel 文件

% if size(data, 2) < dt1

% warning("Data in file %s has fewer columns than dt1; padding with zeros.", path);

% data = [data, zeros(1, dt1 - size(data, 2))]; % 如果数据列不足，进行零填充

% end

% Data(i, :) = data(1, 1:dt1); % 读取数据并赋值到 Data 中

% end

% end

% clear; clc; close all;

% Dirs = ["d=0","d=0.5","d=1","d=1.5","d=2","d=2.5","d=3",...

% "d=3.5","d=4","d=4.5","d=5","d=5.5","d=6","d=6.5",...

% "d=7","x=7.5","d=8","x=8.5","data1","d=9.5",...

% "d=10","x=10.5","d=11","x=11.5","d=12",...

% "x=12.5","d=13","x=13.5","d=14","x=14.5",...

% "d=15","x=15.5","d=16"];

% dt2 = 51;

% dt1 = dt2\*35;

% Data = zeros(length(Dirs), dt1);

%

% for i = 1:length(Dirs)

% path = strcat(Dirs(i), '.xlsx'); % 扫描表格

% if exist(path, 'file')

% data = xlsread(path); % 使用 xlsread 读取 Excel 文件

% if size(data, 2) < dt1

% warning("Data in file %s has fewer columns than dt1; padding with zeros.", path);

% data = [data, zeros(1, dt1 - size(data, 2))]; % 如果数据列不足，进行零填充

% end

% Data(i, :) = data(1, 1:dt1); % 读取数据并赋值到 Data 中

% end

% end

clear; clc; close all;

Dirs = ["x=0","x=0.5","x=1","x=1.5","x=2","x=2.5","x=3",...

"x=3.5","x=4","x=4.5","x=5","x=5.5","x=6","x=6.5",...

"x=7","x=7.5","x=8","x=8.5","data5","x=9.5",...

"x=10","x=10.5","x=11","x=11.5","x=12",...

"x=12.5","x=13","x=13.5","x=14","x=14.5",...

"x=15","x=15.5","x=16"];

dt2 = 51;

dt1 = dt2\*35;

Data = zeros(length(Dirs), dt1);

for i = 1:length(Dirs)

path = strcat(Dirs(i), '.xlsx'); % 扫描表格

if exist(path, 'file')

data = xlsread(path); % 使用 xlsread 读取 Excel 文件

data = data(:)'; % 将 data 转换为行向量

if size(data, 2) < dt1

warning("Data in file %s has fewer columns than dt1; padding with zeros.", path);

data = [data, zeros(1, dt1 - length(data))]; % 如果数据列不足，进行零填充

end

Data(i, :) = data(1, 1:dt1); % 读取数据并赋值到 Data 中

end

end

SS=[12,10,8,6,5,5,5,5,4,3,1,2,1,1,1,1,1,1,10,1,1,2,2,2,3,3,4,5,6,8,9,12,13];

EE=[23,24,27,28,30,30,29,30,31,32,33,33,33,33,34,33,33,33,24,33,33,33,32,32,31,31,30,29,28,27,25,22,21];

SSS=ones(1,33);

EEE=[12,15,20,23,26,26,25,26,28,30,33,32,33,33,34,33,33,33,15,33,33,32,31,31,29,29,27,25,23,20,17,11,9];

YH = Data;

% YH(:,10\*dt2:20\*dt2)=0;

YHH = YH;

figure()

for i=1:33

plot(1:35\*dt2,YHH(i,:)+(i-1)\*256);

hold on;

end

figure()

imagesc(YHH);

YHfl = YHH;

for i=1:33

for j=1:35

YHflMax(i,j) = max(YHfl(i,(dt2\*(j-1)+1):dt2\*j));

end

end

figure(100)

image(YHflMax);

yy=YHflMax/max(max(YHflMax));

yyyy=zeros(size(yy))

yyyy(16:18,:)=yy(18:20,:)

yyyypadd=zeros(35,35);

yyyypadd(2:34,:)=yyyy;

yyy=interp2(yyyy,5);

figure(1000)

imagesc(yyy);

% 设置横轴刻度

x\_ticks = 1:53:size(yyy, 2);

xticks(x\_ticks);

x\_tick\_labels = 0:1:20; % 生成0到20的数字，数量与刻度位置相同

xticklabels(x\_tick\_labels);

%

% %设置纵轴刻度

y\_ticks = 1:60:size(yyy, 1);

yticks(y\_ticks);

y\_tick\_labels = flip( 1:2:70); % 生成0到20的数字，数量与刻度位置相同

yticklabels(y\_tick\_labels);

% 旋转

yyyy\_r=yyyypadd;

yyyypadd(18,23:35)=0;

for i=1:360

rotate = i; % 旋转角度

rotated\_image = imrotate(yyyypadd,rotate,"crop",'nearest'); % 旋转图像

for j=1:35

for k=1:35

if rotated\_image(j,k)~=0 && yyyypadd(j,k)==0

yyyy\_r(j,k)=rotated\_image(j,k);

end

end

end

% set(r, 'alphadata',alpha\_data); % 设置alpha图层

end

figure(2000)

% yyy=interp2(yyyy\_r,5);

% figure(2000)

% imagesc(yyy);

%

% % 设置横轴刻度

% x\_ticks = 1:53:size(yyy, 2);

% xticks(x\_ticks);

% x\_tick\_labels = 0:1:20; % 生成0到20的数字，数量与刻度位置相同

% xticklabels(x\_tick\_labels);

% %

% % %设置纵轴刻度

% y\_ticks = 1:56:size(yyy, 1);

% yticks(y\_ticks);

% y\_tick\_labels = flip( 1:1:20); % 生成0到20的数字，数量与刻度位置相同

% yticklabels(y\_tick\_labels);

% 更高阶插值和高斯平滑滤波

yyy = interp2(yyyy\_r, 5, 'cubic'); % 更高阶插值

yyy = imgaussfilt(yyy, 2); % 高斯平滑处理

figure(2000)

imagesc(yyy);

% 设置横轴刻度

x\_ticks = 1:53:size(yyy, 2);

xticks(x\_ticks);

x\_tick\_labels = 0:1:20;

xticklabels(x\_tick\_labels);

% 设置纵轴刻度

y\_ticks = 1:56:size(yyy, 1);

yticks(y\_ticks);

y\_tick\_labels = flip(1:1:20);

yticklabels(y\_tick\_labels);

% % 插入 x 轴和 y 轴标签

% xlabel('x(cm)'); % 替换为你想要的 x 轴标签

% ylabel('y(cm)'); % 替换为你想要的 y 轴标签

%

% % 可选：添加图标题

% title('Generated Smooth Image');

% 插入 x 轴和 y 轴标签，并设置字体和大小

xlabel('x(cm)', 'FontSize', 14, 'FontName', 'Times New Roman'); % x 轴标签，字体大小为 14，字体为 Arial

ylabel('y(cm)', 'FontSize', 14, 'FontName', 'Times New Roman'); % y 轴标签，字体大小为 14，字体为 Arial

% 设置图标题的字体和大小

% title('Generated Smooth Image', 'FontSize', 16, 'FontName', 'Times New Roman');

% 设置刻度标签字体和大小

set(gca, 'FontSize', 12, 'FontName', 'Times New Roman'); % gca 指当前坐标系

% hold on

% h = imagesc(YHH); % 显示原图

% alpha\_data = ones(size(YHH)); % 生成alpha图层数据，与原图大小相同

% set(h, 'AlphaData', alpha\_data); % 设置alpha图层

% hold off

**The data upload name is data1.xlsx, and the code runs on Matlab 2018b and later versions！**