1-32是：图形应用篇

33-66是：界面设计篇

67-84是：图形处理篇

85-100是：数值分析篇

实例1：三角函数曲线（1）

function shili01

h0=figure('toolbar','none',...

'position',[198 56 350 300],...

'name','实例01');

h1=axes('parent',h0,...

'visible','off');

x=-pi:0.05:pi;

y=sin(x);

plot(x,y);

xlabel('自变量X');

ylabel('函数值Y');

title('SIN( )函数曲线');

grid on

实例2：三角函数曲线（2）

function shili02

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例02');

x=-pi:0.05:pi;

y=sin(x)+cos(x);

plot(x,y,'-\*r','linewidth',1);

grid on

xlabel('自变量X');

ylabel('函数值Y');

title('三角函数');

实例3：图形的叠加

function shili03

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例03');

x=-pi:0.05:pi;

y1=sin(x);

y2=cos(x);

plot(x,y1,...

'-\*r',...

x,y2,...

'--og');

grid on

xlabel('自变量X');

ylabel('函数值Y');

title('三角函数');

实例4：双y轴图形的绘制

function shili04

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例04');

x=0:900;a=1000;b=0.005;

y1=2\*x;

y2=cos(b\*x);

[haxes,hline1,hline2]=plotyy(x,y1,x,y2,'semilogy','plot');

axes(haxes(1))

ylabel('semilog plot');

axes(haxes(2))

ylabel('linear plot');

实例5：单个轴窗口显示多个图形

function shili05

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例05');

t=0:pi/10:2\*pi;

[x,y]=meshgrid(t);

subplot(2,2,1)

plot(sin(t),cos(t))

axis equal

subplot(2,2,2)

z=sin(x)-cos(y);

plot(t,z)

axis([0 2\*pi -2 2])

subplot(2,2,3)

h=sin(x)+cos(y);

plot(t,h)

axis([0 2\*pi -2 2])

subplot(2,2,4)

g=(sin(x).^2)-(cos(y).^2);

plot(t,g)

axis([0 2\*pi -1 1])

实例6：图形标注

function shili06

h0=figure('toolbar','none',...

'position',[200 150 450 400],...

'name','实例06');

t=0:pi/10:2\*pi;

h=plot(t,sin(t));

xlabel('t=0到2\pi','fontsize',16);

ylabel('sin(t)','fontsize',16);

title('\it{从 0to2\pi 的正弦曲线}','fontsize',16)

x=get(h,'xdata');

y=get(h,'ydata');

imin=find(min(y)==y);

imax=find(max(y)==y);

text(x(imin),y(imin),...

['\leftarrow最小值=',num2str(y(imin))],...

'fontsize',16)

text(x(imax),y(imax),...

['\leftarrow最大值=',num2str(y(imax))],...

'fontsize',16)

实例7：条形图形

function shili07

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例07');

tiao1=[562 548 224 545 41 445 745 512];

tiao2=[47 48 57 58 54 52 65 48];

t=0:7;

bar(t,tiao1)

xlabel('X轴');

ylabel('TIAO1值');

h1=gca;

h2=axes('position',get(h1,'position'));

plot(t,tiao2,'linewidth',3)

set(h2,'yaxislocation','right','color','none','xticklabel',[])

实例8：区域图形

function shili08

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例08');

x=91:95;

profits1=[88 75 84 93 77];

profits2=[51 64 54 56 68];

profits3=[42 54 34 25 24];

profits4=[26 38 18 15 4];

area(x,profits1,'facecolor',[0.5 0.9 0.6],...

'edgecolor','b',...

'linewidth',3)

hold on

area(x,profits2,'facecolor',[0.9 0.85 0.7],...

'edgecolor','y',...

'linewidth',3)

hold on

area(x,profits3,'facecolor',[0.3 0.6 0.7],...

'edgecolor','r',...

'linewidth',3)

hold on

area(x,profits4,'facecolor',[0.6 0.5 0.9],...

'edgecolor','m',...

'linewidth',3)

hold off

set(gca,'xtick',[91:95])

set(gca,'layer','top')

gtext('\leftarrow第一季度销量')

gtext('\leftarrow第二季度销量')

gtext('\leftarrow第三季度销量')

gtext('\leftarrow第四季度销量')

xlabel('年','fontsize',16);

ylabel('销售量','fontsize',16);

实例9：饼图的绘制

function shili09

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例09');

t=[54 21 35;

68 54 35;

45 25 12;

48 68 45;

68 54 69];

x=sum(t);

h=pie(x);

textobjs=findobj(h,'type','text');

str1=get(textobjs,{'string'});

val1=get(textobjs,{'extent'});

oldext=cat(1,val1{:});

names={'商品一：';'商品二：';'商品三：'};

str2=strcat(names,str1);

set(textobjs,{'string'},str2)

val2=get(textobjs,{'extent'});

newext=cat(1,val2{:});

offset=sign(oldext(:,1)).\*(newext(:,3)-oldext(:,3))/2;

pos=get(textobjs,{'position'});

textpos=cat(1,pos{:});

textpos(:,1)=textpos(:,1)+offset;

set(textobjs,{'position'},num2cell(textpos,[3,2]))

实例10：阶梯图

function shili10

h0=figure('toolbar','none',...

'position',[200 150 450 400],...

'name','实例10');

a=0.01;

b=0.5;

t=0:10;

f=exp(-a\*t).\*sin(b\*t);

stairs(t,f)

hold on

plot(t,f,':\*')

hold off

glabel='函数e^{-(\alpha\*t)}sin\beta\*t的阶梯图';

gtext(glabel,'fontsize',16)

xlabel('t=0:10','fontsize',16)

axis([0 10 -1.2 1.2])

实例11：枝干图

function shili11

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例11');

x=0:pi/20:2\*pi;

y1=sin(x);

y2=cos(x);

h1=stem(x,y1+y2);

hold on

h2=plot(x,y1,'^r',x,y2,'\*g');

hold off

h3=[h1(1);h2];

legend(h3,'y1+y2','y1=sin(x)','y2=cos(x)')

xlabel('自变量X');

ylabel('函数值Y');

title('正弦函数与余弦函数的线性组合');

实例12：罗盘图

function shili12

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例12');

winddirection=[54 24 65 84

256 12 235 62

125 324 34 254];

windpower=[2 5 5 3

6 8 12 7

6 14 10 8];

rdirection=winddirection\*pi/180;

[x,y]=pol2cart(rdirection,windpower);

compass(x,y);

desc={'风向和风力',

'北京气象台',

'10月1日0：00到',

'10月1日12：00'};

gtext(desc)

实例13：轮廓图

function shili13

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例13');

[th,r]=meshgrid((0:10:360)\*pi/180,0:0.05:1);

[x,y]=pol2cart(th,r);

z=x+i\*y;

f=(z.^4-1).^(0.25);

contour(x,y,abs(f),20)

axis equal

xlabel('实部','fontsize',16);

ylabel('虚部','fontsize',16);

h=polar([0 2\*pi],[0 1]);

delete(h)

hold on

contour(x,y,abs(f),20)

实例14：交互式图形

function shili14

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例14');

axis([0 10 0 10]);

hold on

x=[];

y=[];

n=0;

disp('单击鼠标左键点取需要的点');

disp('单击鼠标右键点取最后一个点');

but=1;

while but==1

[xi,yi,but]=ginput(1);

plot(xi,yi,'bo')

n=n+1;

disp('单击鼠标左键点取下一个点');

x(n,1)=xi;

y(n,1)=yi;

end

t=1:n;

ts=1:0.1:n;

xs=spline(t,x,ts);

ys=spline(t,y,ts);

plot(xs,ys,'r-');

hold off

实例14：交互式图形

function shili14

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例14');

axis([0 10 0 10]);

hold on

x=[];

y=[];

n=0;

disp('单击鼠标左键点取需要的点');

disp('单击鼠标右键点取最后一个点');

but=1;

while but==1

[xi,yi,but]=ginput(1);

plot(xi,yi,'bo')

n=n+1;

disp('单击鼠标左键点取下一个点');

x(n,1)=xi;

y(n,1)=yi;

end

t=1:n;

ts=1:0.1:n;

xs=spline(t,x,ts);

ys=spline(t,y,ts);

plot(xs,ys,'r-');

hold off

实例15：变换的傅立叶函数曲线

function shili15

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例15');

axis equal

m=moviein(20,gcf);

set(gca,'nextplot','replacechildren')

h=uicontrol('style','slider','position',...

[100 10 500 20],'min',1,'max',20)

for j=1:20

plot(fft(eye(j+16)))

set(h,'value',j)

m(:,j)=getframe(gcf);

end

clf;

axes('position',[0 0 1 1]);

movie(m,30)

实例16：劳伦兹非线形方程的无序活动

function shili15

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例15');

axis equal

m=moviein(20,gcf);

set(gca,'nextplot','replacechildren')

h=uicontrol('style','slider','position',...

[100 10 500 20],'min',1,'max',20)

for j=1:20

plot(fft(eye(j+16)))

set(h,'value',j)

m(:,j)=getframe(gcf);

end

clf;

axes('position',[0 0 1 1]);

movie(m,30)

实例17：填充图

function shili17

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例17');

t=(1:2:15)\*pi/8;

x=sin(t);

y=cos(t);

fill(x,y,'r')

axis square off

text(0,0,'STOP',...

'color',[1 1 1],...

'fontsize',50,...

'horizontalalignment','center')

例18：条形图和阶梯形图

function shili18

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例18');

subplot(2,2,1)

x=-3:0.2:3;

y=exp(-x.\*x);

bar(x,y)

title('2-D Bar Chart')

subplot(2,2,2)

x=-3:0.2:3;

y=exp(-x.\*x);

bar3(x,y,'r')

title('3-D Bar Chart')

subplot(2,2,3)

x=-3:0.2:3;

y=exp(-x.\*x);

stairs(x,y)

title('Stair Chart')

subplot(2,2,4)

x=-3:0.2:3;

y=exp(-x.\*x);

barh(x,y)

title('Horizontal Bar Chart')

实例19：三维曲线图

function shili19

h0=figure('toolbar','none',...

'position',[200 150 450 400],...

'name','实例19');

subplot(2,1,1)

x=linspace(0,2\*pi);

y1=sin(x);

y2=cos(x);

y3=sin(x)+cos(x);

z1=zeros(size(x));

z2=0.5\*z1;

z3=z1;

plot3(x,y1,z1,x,y2,z2,x,y3,z3)

grid on

xlabel('X轴');

ylabel('Y轴');

zlabel('Z轴');

title('Figure1:3-D Plot')

subplot(2,1,2)

x=linspace(0,2\*pi);

y1=sin(x);

y2=cos(x);

y3=sin(x)+cos(x);

z1=zeros(size(x));

z2=0.5\*z1;

z3=z1;

plot3(x,z1,y1,x,z2,y2,x,z3,y3)

grid on

xlabel('X轴');

ylabel('Y轴');

zlabel('Z轴');

title('Figure2:3-D Plot')

实例20：图形的隐藏属性

function shili20

h0=figure('toolbar','none',...

'position',[200 150 450 300],...

'name','实例20');

subplot(1,2,1)

[x,y,z]=sphere(10);

mesh(x,y,z)

axis off

title('Figure1:Opaque')

hidden on

subplot(1,2,2)

[x,y,z]=sphere(10);

mesh(x,y,z)

axis off

title('Figure2:Transparent')

hidden off

实例21PEAKS函数曲线

function shili21

h0=figure('toolbar','none',...

'position',[200 100 450 450],...

'name','实例21');

[x,y,z]=peaks(30);

subplot(2,1,1)

x=x(1,:);

y=y(:,1);

i=find(y>0.8&y<1.2);

j=find(x>-0.6&x<0.5);

z(i,j)=nan\*z(i,j);

surfc(x,y,z)

xlabel('X轴');

ylabel('Y轴');

zlabel('Z轴');

title('Figure1:surfc函数形成的曲面')

subplot(2,1,2)

x=x(1,:);

y=y(:,1);

i=find(y>0.8&y<1.2);

j=find(x>-0.6&x<0.5);

z(i,j)=nan\*z(i,j);

surfl(x,y,z)

xlabel('X轴');

ylabel('Y轴');

zlabel('Z轴');

title('Figure2:surfl函数形成的曲面')

实例22：片状图

function shili22

h0=figure('toolbar','none',...

'position',[200 150 550 350],...

'name','实例22');

subplot(1,2,1)

x=rand(1,20);

y=rand(1,20);

z=peaks(x,y\*pi);

t=delaunay(x,y);

trimesh(t,x,y,z)

hidden off

title('Figure1:Triangular Surface Plot');

subplot(1,2,2)

x=rand(1,20);

y=rand(1,20);

z=peaks(x,y\*pi);

t=delaunay(x,y);

trisurf(t,x,y,z)

title('Figure1:Triangular Surface Plot');

实例23：视角的调整

function shili23

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例23');

x=-5:0.5:5;

[x,y]=meshgrid(x);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

subplot(2,2,1)

surf(x,y,z)

xlabel('X-axis')

ylabel('Y-axis')

zlabel('Z-axis')

title('Figure1')

view(-37.5,30)

subplot(2,2,2)

surf(x,y,z)

xlabel('X-axis')

ylabel('Y-axis')

zlabel('Z-axis')

title('Figure2')

view(-37.5+90,30)

subplot(2,2,3)

surf(x,y,z)

xlabel('X-axis')

ylabel('Y-axis')

zlabel('Z-axis')

title('Figure3')

view(-37.5,60)

subplot(2,2,4)

surf(x,y,z)

xlabel('X-axis')

ylabel('Y-axis')

zlabel('Z-axis')

title('Figure4')

view(180,0)

实例24：向量场的绘制

function shili24

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例24');

subplot(2,2,1)

z=peaks;

ribbon(z)

title('Figure1')

subplot(2,2,2)

[x,y,z]=peaks(15);

[dx,dy]=gradient(z,0.5,0.5);

contour(x,y,z,10)

hold on

quiver(x,y,dx,dy)

hold off

title('Figure2')

subplot(2,2,3)

[x,y,z]=peaks(15);

[nx,ny,nz]=surfnorm(x,y,z);

surf(x,y,z)

hold on

quiver3(x,y,z,nx,ny,nz)

hold off

title('Figure3')

subplot(2,2,4)

x=rand(3,5);

y=rand(3,5);

z=rand(3,5);

c=rand(3,5);

fill3(x,y,z,c)

grid on

title('Figure4')

实例25：灯光定位

function shili25

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例25');

vert=[1 1 1;1 2 1;

2 2 1;2 1 1;

1 1 2;1 2 2;

2 2 2;2 1 2];

fac=[1 2 3 4;2 6 7 3;

4 3 7 8;1 5 8 4;

1 2 6 5;5 6 7 8];

grid off

sphere(36)

h=findobj('type','surface');

set(h,'facelighting','phong',...

'facecolor',...

'interp',...

'edgecolor',[0.4 0.4 0.4],...

'backfacelighting',...

'lit')

hold on

patch('faces',fac,'vertices',vert,...

'facecolor','y');

light('position',[1 3 2]);

light('position',[-3 -1 3]);

material shiny

axis vis3d off

hold off

实例26：柱状图

function shili26

h0=figure('toolbar','none',...

'position',[200 50 450 450],...

'name','实例26');

subplot(2,1,1)

x=[5 2 1

8 7 3

9 8 6

5 5 5

4 3 2];

bar(x)

xlabel('X轴');

ylabel('Y轴');

title('第一子图');

subplot(2,1,2)

y=[5 2 1

8 7 3

9 8 6

5 5 5

4 3 2];

barh(y)

xlabel('X轴');

ylabel('Y轴');

title('第二子图');

实例27：设置照明方式

function shili27

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例27');

subplot(2,2,1)

sphere

shading flat

camlight left

camlight right

lighting flat

colorbar

axis off

title('Figure1')

subplot(2,2,2)

sphere

shading flat

camlight left

camlight right

lighting gouraud

colorbar

axis off

title('Figure2')

subplot(2,2,3)

sphere

shading interp

camlight right

camlight left

lighting phong

colorbar

axis off

title('Figure3')

subplot(2,2,4)

sphere

shading flat

camlight left

camlight right

lighting none

colorbar

axis off

title('Figure4')

实例28：羽状图

function shili28

h0=figure('toolbar','none',...

'position',[200 150 450 350],...

'name','实例28');

subplot(2,1,1)

alpha=90:-10:0;

r=ones(size(alpha));

m=alpha\*pi/180;

n=r\*10;

[u,v]=pol2cart(m,n);

feather(u,v)

title('羽状图')

axis([0 20 0 10])

subplot(2,1,2)

t=0:0.5:10;

x=0.05+i;

y=exp(-x\*t);

feather(y)

title('复数矩阵的羽状图')

实例29：立体透视（1）

function shili29

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例29');

[x,y,z]=meshgrid(-2:0.1:2,...

-2:0.1:2,...

-2:0.1:2);

v=x.\*exp(-x.^2-y.^2-z.^2);

grid on

for i=-2:0.5:2;

h1=surf(linspace(-2,2,20),...

linspace(-2,2,20),...

zeros(20)+i);

rotate(h1,[1 -1 1],30)

dx=get(h1,'xdata');

dy=get(h1,'ydata');

dz=get(h1,'zdata');

delete(h1)

slice(x,y,z,v,[-2 2],2,-2)

hold on

slice(x,y,z,v,dx,dy,dz)

hold off

axis tight

view(-5,10)

drawnow

end

实例30：立体透视（2）

function shili30

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例30');

[x,y,z]=meshgrid(-2:0.1:2,...

-2:0.1:2,...

-2:0.1:2);

v=x.\*exp(-x.^2-y.^2-z.^2);

[dx,dy,dz]=cylinder;

slice(x,y,z,v,[-2 2],2,-2)

for i=-2:0.2:2

h=surface(dx+i,dy,dz);

rotate(h,[1 0 0],90)

xp=get(h,'xdata');

yp=get(h,'ydata');

zp=get(h,'zdata');

delete(h)

hold on

hs=slice(x,y,z,v,xp,yp,zp);

axis tight

xlim([-3 3])

view(-10,35)

drawnow

delete(hs)

hold off

end

实例31：表面图形

function shili31

h0=figure('toolbar','none',...

'position',[200 150 550 250],...

'name','实例31');

subplot(1,2,1)

x=rand(100,1)\*16-8;

y=rand(100,1)\*16-8;

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

xlin=linspace(min(x),max(x),33);

ylin=linspace(min(y),max(y),33);

[X,Y]=meshgrid(xlin,ylin);

Z=griddata(x,y,z,X,Y,'cubic');

mesh(X,Y,Z)

axis tight

hold on

plot3(x,y,z,'.','Markersize',20)

subplot(1,2,2)

k=5;

n=2^k-1;

theta=pi\*(-n:2:n)/n;

phi=(pi/2)\*(-n:2:n)'/n;

X=cos(phi)\*cos(theta);

Y=cos(phi)\*sin(theta);

Z=sin(phi)\*ones(size(theta));

colormap([0 0 0;1 1 1])

C=hadamard(2^k);

surf(X,Y,Z,C)

axis square

实例32：沿曲线移动的小球

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例32');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

t=0:pi/24:4\*pi;

y=sin(t);

plot(t,y,'b')

n=length(t);

h=line('color',[0 0.5 0.5],...

'linestyle','.',...

'markersize',25,...

'erasemode','xor');

k1=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[80 100 50 30],...

'string','开始',...

'callback',[...

'i=1;',...

'k=1;,',...

'm=0;,',...

'while 1,',...

'if k==0,',...

'break,',...

'end,',...

'if k~=0,',...

'set(h,''xdata'',t(i),''ydata'',y(i)),',...

'drawnow;,',...

'i=i+1;,',...

'if i>n,',...

'm=m+1;,',...

'i=1;,',...

'end,',...

'end,',...

'end']);

k2=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[180 100 50 30],...

'string','停止',...

'callback',[...

'k=0;,',...

'set(e1,''string'',m),',...

'p=get(h,''xdata'');,',...

'q=get(h,''ydata'');,',...

'set(e2,''string'',p);,',...

'set(e3,''string'',q)']);

k3=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[280 100 50 30],...

'string','关闭',...

'callback','close');

e1=uicontrol('parent',h0,...

'style','edit',...

'position',[60 30 60 20]);

t1=uicontrol('parent',h0,...

'style','text',...

'string','循环次数',...

'position',[60 50 60 20]);

e2=uicontrol('parent',h0,...

'style','edit',...

'position',[180 30 50 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','终点的X坐标值',...

'position',[155 50 100 20]);

e3=uicontrol('parent',h0,...

'style','edit',...

'position',[300 30 50 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','终点的Y坐标值',...

'position',[275 50 100 20]);

实例33：曲线转换按钮

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例33');

x=0:0.5:2\*pi;

y=sin(x);

h=plot(x,y);

grid on

huidiao=[...

'if i==1,',...

'i=0;,',...

'y=cos(x);,',...

'delete(h),',...

'set(hm,''string'',''正弦函数''),',...

'h=plot(x,y);,',...

'grid on,',...

'else if i==0,',...

'i=1;,',...

'y=sin(x);,',...

'set(hm,''string'',''余弦函数''),',...

'delete(h),',...

'h=plot(x,y);,',...

'grid on,',...

'end,',...

'end'];

hm=uicontrol(gcf,'style','pushbutton',...

'string','余弦函数',...

'callback',huidiao);

i=1;

set(hm,'position',[250 20 60 20]);

set(gca,'position',[0.2 0.2 0.6 0.6])

title('按钮的使用')

hold on

实例34：栅格控制按钮

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例34');

x=0:0.5:2\*pi;

y=sin(x);

plot(x,y)

huidiao1=[...

'set(h\_toggle2,''value'',0),',...

'grid on,',...

];

huidiao2=[...

'set(h\_toggle1,''value'',0),',...

'grid off,',...

];

h\_toggle1=uicontrol(gcf,'style','togglebutton',...

'string','grid on',...

'value',0,...

'position',[20 45 50 20],...

'callback',huidiao1);

h\_toggle2=uicontrol(gcf,'style','togglebutton',...

'string','grid off',...

'value',0,...

'position',[20 20 50 20],...

'callback',huidiao2);

set(gca,'position',[0.2 0.2 0.6 0.6])

title('开关按钮的使用')

实例35：编辑框的使用

h0=figure('toolbar','none',...

'position',[200 150 350 250],...

'name','实例35');

f='Please input the letter';

huidiao1=[...

'g=upper(f);,',...

'set(h2\_edit,''string'',g),',...

];

huidiao2=[...

'g=lower(f);,',...

'set(h2\_edit,''string'',g),',...

];

h1\_edit=uicontrol(gcf,'style','edit',...

'position',[100 200 100 50],...

'HorizontalAlignment','left',...

'string','Please input the letter',...

'callback','f=get(h1\_edit,''string'');',...

'background','w',...

'max',5,...

'min',1);

h2\_edit=uicontrol(gcf,'style','edit',...

'HorizontalAlignment','left',...

'position',[100 100 100 50],...

'background','w',...

'max',5,...

'min',1);

h1\_button=uicontrol(gcf,'style','pushbutton',...

'string','小写变大写',...

'position',[100 45 100 20],...

'callback',huidiao1);

h2\_button=uicontrol(gcf,'style','pushbutton',...

'string','大写变小写',...

'position',[100 20 100 20],...

'callback',huidiao2);

实例36：弹出式菜单

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例36');

x=0:0.5:2\*pi;

y=sin(x);

h=plot(x,y);

grid on

hm=uicontrol(gcf,'style','popupmenu',...

'string',...

'sin(x)|cos(x)|sin(x)+cos(x)|exp(-sin(x))',...

'position',[250 20 50 20]);

set(hm,'value',1)

huidiao=[...

'v=get(hm,''value'');,',...

'switch v,',...

'case 1,',...

'delete(h),',...

'y=sin(x);,',...

'h=plot(x,y);,',...

'grid on,',...

'case 2,',...

'delete(h),',...

'y=cos(x);,',...

'h=plot(x,y);,',...

'grid on,',...

'case 3,',...

'delete(h),',...

'y=sin(x)+cos(x);,',...

'h=plot(x,y);,',...

'grid on,',...

'case 4,',...

'delete(h),',...

'y=exp(-sin(x));,',...

'h=plot(x,y);,',...

'grid on,',...

'end'];

set(hm,'callback',huidiao)

set(gca,'position',[0.2 0.2 0.6 0.6])

title('弹出式菜单的使用')

实例37：滑标的使用

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例37');

[x,y]=meshgrid(-8:0.5:8);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

h0=mesh(x,y,z);

h1=axes('position',...

[0.2 0.2 0.5 0.5],...

'visible','off');

htext=uicontrol(gcf,...

'units','points',...

'position',[20 30 45 15],...

'string','brightness',...

'style','text');

hslider=uicontrol(gcf,...

'units','points',...

'position',[10 10 300 15],...

'min',-1,...

'max',1,...

'style','slider',...

'callback',...

'brighten(get(hslider,''value''))');

实例38：多选菜单

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例38');

[x,y]=meshgrid(-8:0.5:8);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

h0=mesh(x,y,z);

hlist=uicontrol(gcf,'style','listbox',...

'string','default|spring|summer|autumn|winter',...

'max',5,...

'min',1,...

'position',[20 20 80 100],...

'callback',[...

'k=get(hlist,''value'');,',...

'switch k,',...

'case 1,',...

'colormap default,',...

'case 2,',...

'colormap spring,',...

'case 3,',...

'colormap summer,',...

'case 4,',...

'colormap autumn,',...

'case 5,',...

'colormap winter,',...

'end']);

实例39：菜单控制的使用

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例39');

x=0:0.5:2\*pi;

y=cos(x);

h=plot(x,y);

grid on

set(gcf,'toolbar','none')

hm=uimenu('label','example');

huidiao1=[...

'set(hm\_gridon,''checked'',''on''),',...

'set(hm\_gridoff,''checked'',''off''),',...

'grid on'];

huidiao2=[...

'set(hm\_gridoff,''checked'',''on''),',...

'set(hm\_gridon,''checked'',''off''),',...

'grid off'];

hm\_gridon=uimenu(hm,'label','grid on',...

'checked','on',...

'callback',huidiao1);

hm\_gridoff=uimenu(hm,'label','grid off',...

'checked','off',...

'callback',huidiao2);

实例40：UIMENU菜单的应用

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例40');

h1=uimenu(gcf,'label','函数');

h11=uimenu(h1,'label','轮廓图',...

'callback',[...

'set(h31,''checked'',''on''),',...

'set(h32,''checked'',''off''),',...

'[x,y,z]=peaks;,',...

'contour3(x,y,z,30)']);

h12=uimenu(h1,'label','高斯分布',...

'callback',[...

'set(h31,''checked'',''on''),',...

'set(h32,''checked'',''off''),',...

'mesh(peaks);,',...

'axis tight']);

h13=uimenu(h1,'label','Sinc函数',...

'callback',[...

'set(h31,''checked'',''on''),',...

'set(h32,''checked'',''off''),',...

'[x,y]=meshgrid(-8:0.5:8);,',...

'r=sqrt(x.^2+y.^2)+eps;,',...

'z=sin(r)./r;,',...

'mesh(x,y,z)']);

h2=uimenu(gcf,'label','色彩');

hl2(1)=uimenu(h2,'label','Default',...

'checked','on',...

'callback',...

[...

'set(hl2,''checked'',''off''),',...

'set(hl2(1),''checked'',''on''),',...

'colormap(''default'')']);

hl2(2)=uimenu(h2,'label','spring',...

'callback',...

[...

'set(hl2,''checked'',''off''),',...

'set(hl2(2),''checked'',''on''),',...

'colormap(spring)']);

hl2(3)=uimenu(h2,'label','Summer',...

'callback',...

[...

'set(hl2,''checked'',''off''),',...

'set(hl2(3),''checked'',''on''),',...

'colormap(summer)']);

hl2(4)=uimenu(h2,'label','Autumn',...

'callback',...

[...

'set(hl2,''checked'',''off''),',...

'set(hl2(4),''checked'',''on''),',...

'colormap(autumn)']);

hl2(5)=uimenu(h2,'label','Winter',...

'callback',...

[...

'set(hl2,''checked'',''off''),',...

'set(hl2(5),''checked'',''on''),',...

'colormap(winter)']);

h3=uimenu(gcf,'label','坐标选项');

h31=uimenu(h3,'label','Axis on',...

'callback',...

[...

'axis on,',...

'set(h31,''checked'',''on''),',...

'set(h32,''checked'',''off'')']);

h32=uimenu(h3,'label','Axis off',...

'callback',...

[...

'axis off,',...

'set(h32,''checked'',''on''),',...

'set(h31,''checked'',''off'')']);

实例41：除法计算器

h=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例41');

h1=uicontrol(gcf,'style','edit',...

'position',[80 200 100 20],...

'HorizontalAlignment','right',...

'callback',['m=get(h1,''string'');,',...

'a=str2num(m);']);

h2=uicontrol(gcf,'style','edit',...

'HorizontalAlignment','right',...

'position',[80 150 100 20],...

'callback',['n=get(h2,''string'');,',...

'b=str2num(n);']);

h3=uicontrol(gcf,'style','text',...

'string','被除数',...

'position',[80 230 100 20]);

h4=uicontrol(gcf,'style','edit',...

'position',[80 50 100 20]);

h5=uicontrol(gcf,'style','pushbutton',...

'position',[80 100 100 20],...

'string','=',...

'callback',[...

'if b==0,',...

'h7=errordlg(''除数不能为0！'',''error'',''on'');,',...

'else,',...

'k=a/b;,',...

'c=num2str(k);,',...

'set(h4,''string'',c),',...

'end']);

h8=uicontrol(gcf,'style','text',...

'string','除数',...

'position',[80 175 100 20]);

h9=uicontrol(gcf,'style','text',...

'string','商',...

'position',[80 75 100 20]);

实例42：单选框的使用

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例42');

x=0:0.5:2\*pi;

y=sin(x);

plot(x,y)

grid on

set(gcf,'toolbar','none')

g=set(gca,'position',[0.2 0.2 0.6 0.6]);

huidiao1=[...

'grid on,',...

'set(box\_on,''value'',1),',...

'set(box\_off,''value'',0),'];

huidiao2=[...

'grid off,',...

'set(box\_off,''value'',1),',...

'set(box\_on,''value'',0),'];

box\_on=uicontrol(gcf,'style','radio',...

'position',[5 50 50 20],...

'string','grid on',...

'value',1,...

'callback',huidiao1);

box\_off=uicontrol(gcf,'style','radio',...

'position',[5 20 50 20],...

'string','grid off',...

'value',0,...

'callback',huidiao2);

title('无线按钮的使用')

实例43：添加环境效果

h0=figure('toolbar','none',...

'position',[198 56 450 468],...

'name','实例43');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','off');

sphere

h=findobj('type','surface');

shading interp

axis equal

l=light('position',[0 -2 1]);

k(1)=get(h,'specularstrength');

k(2)=get(h,'diffusestrength');

k(3)=get(h,'specularexponent');

k(4)=get(h,'specularcolorreflectance');

u1=uimenu('parent',h0,...

'label','灯光效果',...

'tag','u1',...

'backgroundcolor',[0.75 0.75 0.75]);

u11=uimenu('parent',u1,...

'label','gouraud',...

'tag','u11',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u11,''checked'',''on'');,',...

'set(u12,''checked'',''off'');,',...

'set(h,''facelighting'',''gouraud'')']);

u12=uimenu('parent',u1,...

'label','phong',...

'tag','u12',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u11,''checked'',''off'');,',...

'set(u12,''checked'',''on'');,',...

'set(h,''facelighting'',''gouraud'')']);

u2=uimenu('parent',h0,...

'label','背面灯光',...

'tag','u2',...

'backgroundcolor',[0.75 0.75 0.75]);

u21=uimenu('parent',u2,...

'label','reverselit',...

'tag','u21',...

'checked','on',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u21,''checked'',''on'');,',...

'set(u22,''checked'',''off'');,',...

'set(h,''backfacelighting'',''reverselit'')']);

u22=uimenu('parent',u2,...

'label','reverselit',...

'tag','u22',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u21,''checked'',''off'');,',...

'set(u22,''checked'',''on'');,',...

'set(h,''backfacelighting'',''reverselit'')']);

s1=uicontrol('parent',h0,...

'units','points',...

'style','slider',...

'tag','s1',...

'min',0,...

'max',1,...

'value',k(1),...

'position',[20 80 100 15],...

'callback',[...

's1value=get(s1,''value'');,',...

'set(h,''specularstrength'',s1value)']);

t1=uicontrol('parent',h0,...

'units','points',...

'style','text',...

'tag','t1',...

'string','镜面反射强度',...

'position',[20 97 100 15]);

s2=uicontrol('parent',h0,...

'units','points',...

'style','slider',...

'tag','s2',...

'min',0,...

'max',1,...

'value',k(2),...

'position',[20 30 100 15],...

'callback',[...

's2value=get(s2,''value'');,',...

'set(h,''diffusestrength'',s2value)']);

t2=uicontrol('parent',h0,...

'units','points',...

'style','text',...

'tag','t2',...

'string','漫反射强度',...

'position',[20 47 100 15]);

s3=uicontrol('parent',h0,...

'units','points',...

'style','slider',...

'tag','s3',...

'min',0.1,...

'max',1,...

'value',k(3)/20,...

'position',[220 80 100 15],...

'callback',[...

's3value=get(s3,''value'')+eps;,',...

'set(h,''specularexponent'',20\*s3value)']);

t3=uicontrol('parent',h0,...

'units','points',...

'style','text',...

'tag','t3',...

'string','镜面指数',...

'position',[220 97 100 15]);

s4=uicontrol('parent',h0,...

'units','points',...

'style','slider',...

'tag','s4',...

'min',0,...

'max',1,...

'value',k(4),...

'position',[220 30 100 15],...

'callback',[...

's4value=get(s4,''value'');,',...

'set(h,''specularcolorreflectance'',s4value)']);

t4=uicontrol('parent',h0,...

'units','points',...

'style','text',...

'tag','t1',...

'string','镜面颜色反射比',...

'position',[220 47 100 15]);

b1=uicontrol('parent',h0,...

'units','points',...

'style','pushbutton',...

'tag','b1',...

'string','关闭',...

'position',[145 45 50 30],...

'callback','close');

实例44：改变坐标轴范围

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例44');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

e1=uicontrol('parent',h0,...

'style','edit',...

'string',1,...

'position',[50 120 50 20]);

t1=uicontrol('parent',h0,...

'style','text',...

'string','X轴最小值',...

'position',[35 150 80 20]);

e2=uicontrol('parent',h0,...

'style','edit',...

'string',5,...

'position',[50 60 50 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','X轴最大值',...

'position',[35 90 80 20]);

e3=uicontrol('parent',h0,...

'style','edit',...

'string',1,...

'position',[150 120 50 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','Y轴最小值',...

'position',[135 150 80 20]);

e4=uicontrol('parent',h0,...

'style','edit',...

'string',5,...

'position',[150 60 50 20]);

t4=uicontrol('parent',h0,...

'style','text',...

'string','Y轴最大值',...

'position',[135 90 80 20]);

e5=uicontrol('parent',h0,...

'style','edit',...

'string',20,...

'position',[250 120 50 20]);

t5=uicontrol('parent',h0,...

'style','text',...

'horizontalalignment','left',...

'string','点数',...

'position',[250 150 30 20]);

b1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','绘图',...

'position',[250 60 60 40],...

'callback',[...

'a=str2num(get(e1,''string''));,',...

'b=str2num(get(e2,''string''));,',...

'c=str2num(get(e3,''string''));,',...

'd=str2num(get(e4,''string''));,',...

'n=str2num(get(e5,''string''));,',...

'xgrid=linspace(-abs(a),abs(a),n);,',...

'ygrid=linspace(-abs(b),abs(b),n);,',...

'[x,y]=meshgrid(xgrid,ygrid);,',...

'z=c\*sqrt(d-y.\*y/b/b-x.\*x/a/a);,',...

'u=1;,',...

'z1=real(z);,',...

'for k=2:n-1,',...

'for j=2:n-1,',...

'if imag(z(k,j))~=0,',...

'z1(k,j)=0;,',...

'end,',...

'if all(imag(z([k-1:k+1],[j-1:j+1])))~=0,',...

'z1(k,j)=nan;,',...

'end,',...

'end,',...

'end,',...

'surf(x,y,z1),',...

'hold on,',...

'if u==1,',...

'z2=-z1;,',...

'surf(x,y,z2),',...

'axis([-abs(a),abs(a),-abs(b),abs(b),-abs(c),abs(c)]);,',...

'end,',...

'xlabel(''x'');,',...

'ylabel(''y'');,',...

'zlabel(''z'');,',...

'hold off']);

b2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','关闭',...

'position',[150 10 60 20],...

'callback','close');

实例45：简单运算器

h1=uicontrol(gcf,'style','radio',...

'string','加',...

'value',1,...

'position',[20 150 40 20],...

'callback',[...

'k=1;,',...

'set(h1,''value'',1),',...

'set(h2,''value'',0),',...

'set(h3,''value'',0)']);

h2=uicontrol(gcf,'style','radio',...

'string','减',...

'position',[20 110 40 20],...

'callback',[...

'k=2;,',...

'set(h2,''value'',1),',...

'set(h1,''value'',0),',...

'set(h3,''value'',0)']);

h3=uicontrol(gcf,'style','radio',...

'string','乘',...

'position',[20 70 40 20],...

'callback',[...

'k=3;,',...

'set(h3,''value'',1),',...

'set(h2,''value'',0),',...

'set(h1,''value'',0)']);

e1=uicontrol(gcf,'style','edit',...

'position',[80 150 100 20]);

e2=uicontrol(gcf,'style','edit',...

'position',[80 110 100 20]);

e3=uicontrol(gcf,'style','edit',...

'position',[80 70 100 20]);

b1=uicontrol(gcf,'style','pushbutton',...

'string','运算',...

'position',[200 150 80 30],...

'callback',[...

'x=str2num(get(e1,''string''));,',...

'y=str2num(get(e2,''string''));,',...

'switch k,',...

'case 1,',...

'z=x+y;,',...

'case 2,',...

'z=x-y;,',...

'case 3,',...

'z=x\*y;,',...

'end,',...

'set(e3,''string'',num2str(z))']);

b2=uicontrol(gcf,'style','pushbutton',...

'string','退出',...

'position',[200 100 80 30],...

'callback','close');

实例46：曲线色彩的修改

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','my second gui');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

x=0:0.1:2\*pi;

k=plot(x,sin(x));

xlabel('自变量X');

ylabel('函数值Y');

title('图形色彩改变');

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor','r',...

'position',[60 100 50 30],...

'callback','set(k,''color'',''r'')');

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor','g',...

'position',[170 100 50 30],...

'callback','set(k,''color'',''g'')');

p3=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor','b',...

'position',[280 100 50 30],...

'callback','set(k,''color'',''b'')');

p4=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor',[1 1 1],...

'fontsize',20,...

'fontweight','demi',...

'string','关闭',...

'position',[150 30 80 60],...

'callback','close');

t1=uicontrol('parent',h0,...

'style','text',...

'string','红色',...

'fontsize',12,...

'fontweight','demi',...

'position',[60 120 50 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','绿色',...

'fontsize',12,...

'fontweight','demi',...

'position',[170 120 50 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','蓝色',...

'fontsize',12,...

'fontweight','demi',...

'position',[280 120 50 20]);

实例47：曲线标记

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','my second gui');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

x=0:0.1:2\*pi;

k=plot(x,sin(x),'\*');

xlabel('自变量X');

ylabel('函数值Y');

title('标记类型的改变');

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','+',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[60 100 50 20],...

'callback','set(k,''marker'',''+'')');

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','o',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[170 100 50 20],...

'callback','set(k,''marker'',''o'')');

p3=uicontrol('parent',h0,...

'style','pushbutton',...

'string','x',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[280 100 50 20],...

'callback','set(k,''marker'',''x'')');

p4=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor',[1 1 1],...

'fontsize',20,...

'fontweight','demi',...

'string','关闭',...

'position',[150 30 80 60],...

'callback','close');

t1=uicontrol('parent',h0,...

'style','text',...

'string','星号',...

'fontsize',12,...

'fontweight','demi',...

'position',[60 120 50 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','圆圈',...

'fontsize',12,...

'fontweight','demi',...

'position',[170 120 50 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','叉号',...

'fontsize',12,...

'fontweight','demi',...

'position',[280 120 50 20]);

实例48：修改曲型

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例48');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

x=0:0.1:2\*pi;

k=plot(x,sin(x));

xlabel('自变量X');

ylabel('函数值Y');

title('线型的改变');

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','-.',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[60 100 50 20],...

'callback','set(k,''linestyle'',''-.'')');

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'string',':',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[170 100 50 20],...

'callback','set(k,''linestyle'','':'')');

p3=uicontrol('parent',h0,...

'style','pushbutton',...

'string','-',...

'fontsize',20,...

'foregroundcolor',[1 1 1],...

'backgroundcolor',[0 0 0],...

'position',[280 100 50 20],...

'callback','set(k,''linestyle'',''-'')');

p4=uicontrol('parent',h0,...

'style','pushbutton',...

'backgroundcolor',[1 1 1],...

'fontsize',20,...

'fontweight','demi',...

'string','关闭',...

'position',[150 30 80 60],...

'callback','close');

t1=uicontrol('parent',h0,...

'style','text',...

'string','点划线',...

'fontsize',12,...

'fontweight','demi',...

'position',[60 120 50 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','虚线',...

'fontsize',12,...

'fontweight','demi',...

'position',[170 120 50 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','实线',...

'fontsize',12,...

'fontweight','demi',...

'position',[280 120 50 20]);

实例49：指定坐标轴范围

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例49');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','on');

x=0:0.1:2\*pi;

y=sin(x);

plot(x,y);

xlabel('X');

ylabel('Y');

title('坐标轴范围的改变');

h=get(gca,'xlim');

k=get(gca,'ylim');

e1=uicontrol('parent',h0,...

'style','edit',...

'string',eval(num2str(h(1))),...

'horizontalalignment','right',...

'position',[80 120 100 20]);

t1=uicontrol('parent',h0,...

'style','text',...

'string','X轴最小值',...

'position',[100 145 80 20]);

e2=uicontrol('parent',h0,...

'style','edit',...

'string',eval(num2str(h(2))),...

'horizontalalignment','right',...

'position',[80 60 100 20]);

t2=uicontrol('parent',h0,...

'style','text',...

'string','X轴最大值',...

'position',[100 85 80 20]);

e3=uicontrol('parent',h0,...

'style','edit',...

'string',eval(num2str(k(1))),...

'horizontalalignment','right',...

'position',[250 120 100 20]);

t3=uicontrol('parent',h0,...

'style','text',...

'string','Y轴最小值',...

'position',[270 145 80 20]);

e4=uicontrol('parent',h0,...

'style','edit',...

'string',eval(num2str(k(2))),...

'horizontalalignment','right',...

'position',[250 60 100 20]);

t4=uicontrol('parent',h0,...

'style','text',...

'string','X轴最小值',...

'position',[270 85 80 20]);

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','设置',...

'position',[105 10 50 30],...

'callback',[...

'a=str2num(get(e1,''string''));,',...

'b=str2num(get(e2,''string''));,',...

'c=str2num(get(e3,''string''));,',...

'd=str2num(get(e4,''string''));,',...

'axis([a b c d]),',...

'drawnow']);

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','关闭',...

'position',[275 10 50 30],...

'callback','close');

实例50：绘制不同函数曲线的用户界面

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例50');

h1=axes('parent',h0,...

'position',[0.29 0.45 0.7 0.5],...

'visible','on');

f=uicontrol('parent',h0,...

'style','frame',...

'position',[5 50 90 400]);

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[150 100 60 40],...

'string','绘图',...

'callback',[...

'm=str2num(get(e1,''string''));,',...

'n=str2num(get(e2,''string''));,',...

'a=get(l1,''value'');,',...

'x=m:0.1:n;',...

'if a==1,',...

'plot(x,sin(x)),',...

'end,',...

'if a==2,',...

'plot(x,cos(x)),',...

'end,',...

'if a==3,',...

'plot(x,exp(x)),',...

'end']);

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[270 100 60 40],...

'string','关闭',...

'callback','close');

l1=uicontrol('parent',h0,...

'style','listbox',...

'position',[10 300 80 80],...

'string','sin(x)|cos(x)|exp(x)',...

'value',1,...

'max',0.5,...

'min',0);

f2=uicontrol('parent',h0,...

'style','text',...

'string','选择函数',...

'fontsize',10,...

'position',[10 380 80 20]);

r1=uicontrol('style','radio',...

'string','grid on',...

'value',0,...

'position',[10 100 60 20],...

'callback',[...

'grid on,',...

'set(r1,''value'',1);,',...

'set(r2,''value'',0)']);

r2=uicontrol('style','radio',...

'string','grid off',...

'position',[10 80 60 20],...

'value',1,...

'callback',[...

'grid off,',...

'set(r2,''value'',1);,',...

'set(r1,''value'',0)']);

e1=uicontrol('parent',h0,...

'style','edit',...

'string',0,...

'position',[20 210 60 20],...

'horizontalalignment','right');

e2=uicontrol('parent',h0,...

'style','edit',...

'string','3',...

'position',[20 150 60 20],...

'horizontalalignment','right');

t1=uicontrol('parent',h0,...

'style','text',...

'string','X from',...

'fontsize',10,...

'position',[20 230 60 20],...

'horizontalalignment','center');

t2=uicontrol('parent',h0,...

'style','text',...

'string','To',...

'fontsize',10,...

'position',[20 170 60 20],...

'horizontalalignment','center');

实例51：可设置函数曲线图视角的用户界面

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例51');

h1=axes('parent',h0,...

'position',[0.15 0.45 0.7 0.5],...

'visible','off');

[x,y]=meshgrid(-8:0.5:8);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

f1=surf(x,y,z);

shading interp

view(-50,30)

camlight left

colormap([1 0 0])

fv=get(h0,'colormap');

ifv=fv;

p1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','重置',...

'position',[280 120 50 30],...

'callback',[...

'set(s1,''value'',ifv(1));,',...

'set(s2,''value'',ifv(2));,',...

'set(s3,''value'',ifv(3));,',...

'set(h0,''colormap'',ifv)']);

p2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','关闭',...

'position',[280 60 50 30],...

'callback','close');

s1=uicontrol('parent',h0,...

'style','slider',...

'min',0,...

'max',1,...

'value',fv(1),...

'position',[20 150 200 20],...

'callback',[...

's1k=get(s1,''value'');,',...

'fv(1)=s1k;,',...

'set(h0,''colormap'',fv);']);

t1=uicontrol('parent',h0,...

'style','text',...

'string','改变红色成分',...

'position',[20 170 100 20]);

s2=uicontrol('parent',h0,...

'style','slider',...

'min',0,...

'max',1,...

'value',fv(2),...

'position',[20 100 200 20],...

'callback',[...

's2k=get(s2,''value'');,',...

'fv(2)=s2k;,',...

'set(h0,''colormap'',fv);']);

t2=uicontrol('parent',h0,...

'style','text',...

'string','改变绿色成分',...

'position',[20 120 100 20]);

s3=uicontrol('parent',h0,...

'style','slider',...

'min',0,...

'max',1,...

'value',fv(3),...

'position',[20 50 200 20],...

'callback',[...

's3k=get(s3,''value'');,',...

'fv(3)=s3k;,',...

'set(h0,''colormap'',fv);']);

t1=uicontrol('parent',h0,...

'style','text',...

'string','改变蓝色成分',...

'position',[20 70 100 20]);

实例52：可设置函数曲线图视角的用户界面

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例52');

h1=axes('parent',h0,...

'position',[0.15 0.5 0.7 0.5],...

'visible','off');

[x,y]=meshgrid(-8:0.5:8);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

fh=surf(x,y,z);

shading interp

view([-60 30])

fv=get(h1,'view');

fv2=fv;

camlight left

sh1=uicontrol('parent',h0,...

'style','slider',...

'max',1,...

'min',-1,...

'value',fv(1)/180,...

'position',[20 150 200 20],...

'callback',[...

'fv(1)=90\*get(sh1,''value'');,',...

'set(h1,''view'',[fv(1) fv(2)]),',...

'set(ed1,''string'',fv(1))']);

text1=uicontrol('parent',h0,...

'style','text',...

'string','方位角的变化滑标',...

'position',[20 170 200 20]);

sh2=uicontrol('parent',h0,...

'style','slider',...

'max',1,...

'min',-1,...

'value',fv(2)/180,...

'position',[20 90 200 20],...

'callback',[...

'fv(2)=90\*get(sh2,''value'');,',...

'set(h1,''view'',[fv(1) fv(2)]),',...

'set(ed2,''string'',fv(2))']);

text2=uicontrol('parent',h0,...

'style','text',...

'string','仰角的变化滑标',...

'position',[20 110 200 20]);

ed1=uicontrol('parent',h0,...

'style','edit',...

'string',fv(1),...

'position',[30 30 50 20]);

text3=uicontrol('parent',h0,...

'style','text',...

'string','方位角的数值',...

'position',[20 50 80 20]);

ed2=uicontrol('parent',h0,...

'style','edit',...

'string',fv(2),...

'position',[150 30 50 20]);

text4=uicontrol('parent',h0,...

'style','text',...

'string','仰角的数值',...

'position',[135 50 80 20]);

pf1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','重置',...

'position',[280 120 50 30],...

'callback',[...

'set(h1,''view'',fv2),',...

'set(sh1,''value'',fv2(1)/180),',...

'set(sh2,''value'',fv2(2)/180),',...

'set(ed1,''string'',fv2(1)),',...

'set(ed2,''string'',fv2(2))']);

pf2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','关闭',...

'position',[280 60 50 30],...

'callback','close');

实例53：可设置函数曲线光源的用户界面

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例53');

h1=axes('parent',h0,...

'position',[0.15 0.5 0.7 0.5],...

'visible','off');

[x,y]=meshgrid(-8:0.5:8);

r=sqrt(x.^2+y.^2)+eps;

z=sin(r)./r;

fh=surf(x,y,z);

shading interp

view([-60 30])

camlight left

lightk=light('position',[0 -2 1]);

button1=uicontrol('parent',h0,...

'style','pushbutton',...

'string','设置光线',...

'position',[80 60 70 30],...

'callback',[...

'an1=inputdlg(''光线来源的X轴坐标'');,',...

'k1=str2num(an1{1});,',...

'an2=inputdlg(''光线来源的Y轴坐标'');,',...

'k2=str2num(an2{1});,',...

'an3=inputdlg(''光线来源的Z轴坐标'');,',...

'k3=str2num(an3{1});,',...

'set(lightk,''position'',[k1 k2 k3]);,',...

'set(edit1,''string'',[''['',num2str(k1),'' '',num2str(k2),'' '',num2str(k3),'']'']);']);

button2=uicontrol('parent',h0,...

'style','pushbutton',...

'string','关闭',...

'position',[250 60 70 30],...

'callback','close');

edit1=uicontrol('parent',h0,...

'style','edit',...

'max',2,...

'min',0,...

'fontsize',15,...

'backgroundcolor',[1 1 1],...

'string','[0 -2 1]',...

'position',[80 110 220 30]);

text1=uicontrol('parent',h0,...

'style','text',...

'backgroundcolor',[0.75 0.75 0.75],...

'fontsize',15,...

'string','光线来源坐标',...

'position',[80 140 220 30]);

实例54：添加效果

h0=figure('toolbar','none',...

'position',[200 50 300 350],...

'name','实例54');

h1=axes('parent',h0,...

'position',[0.2 0.4 0.6 0.6],...

'visible','off');

ezsurf('sin(sqrt(x.^2+y.^2))/sqrt(x.^2+y.^2)',[-6\*pi,6\*pi])

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','设置',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[40 50 50 20],...

'callback',[...

'view(0,75);,',...

'shading interp;,',...

'lightangle(-45,30);,',...

'k=findobj(gca,''type'',''surface'');,'...

'set(k,''facelighting'',''phong'');,',...

'set(k,''ambientstrength'',0.3);,',...

'set(k,''diffusestrength'',0.8);,',...

'set(k,''specularstrength'',0.9);,',...

'set(k,''specularexponent'',25);,',...

'set(k,''backfacelighting'',''unlit'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[120 50 50 20],...

'callback','close');

实例55：查询日期

h0=figure('toolbar','none',...

'position',[198 56 408 468],...

'name','实例55');

h1=axes('parent',h0,...

'position',[0.15 0.5 0.7 0.5],...

'visible','off');

huidiao=[...

'yearnum=str2num(get(edit1,''string''));,',...

'monthnum=str2num(get(edit2,''string''));,',...

'daynum=str2num(get(edit3,''string''));,',...

'monthday=[0 31 28 31 30 31 30 31 31 30 31 30 31];,',...

'dyear=yearnum-2000;,',...

'beishu=fix(dyear/4);,',...

'yushu=rem(yearnum,4);,',...

'if yushu==0,',...

'monthday(3)=29;,',...

'end,',...

'mday=0;,',...

'for i=1:monthnum,',...

'mday=monthday(i)+mday;,',...

'end,',...

'yearday=mday+daynum-1;,',...

'noweek=fix(yearday/7);,',...

'set(edit5,''string'',[''第'',num2str(noweek),''周'']);,',...

'if dyear>0,',...

'if yushu==0,',...

'beishu=beishu-1;,',...

'end,',...

'dday=yearday+365\*dyear+beishu+1;,',...

'end,',...

'if dyear<=0,',...

'dday=365\*dyear+yearday+beishu;,',...

'end,',...

'mweek=rem(dday,7)+7;,',...

'if mweek==8,',...

'set(edit4,''string'',''Sunday'');,',...

'end,',...

'if mweek==9,',...

'set(edit4,''string'',''Monday'');,',...

'end,',...

'if mweek==10,',...

'set(edit4,''string'',''Tuesday'');,',...

'end,',...

'if mweek==11,',...

'set(edit4,''string'',''Wednesday'');,',...

'end,',...

'if mweek==12,',...

'set(edit4,''string'',''Thursday'');,',...

'end,',...

'if mweek==13,',...

'set(edit4,''string'',''Friday'');,',...

'end,',...

'if mweek==7,',...

'set(edit4,''string'',''Saturday'');,',...

'end,',...

'if mweek==6,',...

'set(edit4,''string'',''Friday'');,',...

'end,',...

'if mweek==5,',...

'set(edit4,''string'',''Thursday'');,',...

'end,',...

'if mweek==4,',...

'set(edit4,''string'',''Wednesday'');,',...

'end,',...

'if mweek==3,',...

'set(edit4,''string'',''Tuesday'');,',...

'end,',...

'if mweek==2,',...

'set(edit4,''string'',''Monday'');,',...

'end,',...

'if mweek==1,',...

'set(edit4,''string'',''Sunday'');,',...

'end'];

edit1=uicontrol('parent',h0,...

'style','edit',...

'horizontalalignment','right',...

'position',[40 300 50 20]);

text1=uicontrol('parent',h0,...

'style','text',...

'string','年',...

'horizontalalignment','left',...

'position',[90 300 50 20]);

edit2=uicontrol('parent',h0,...

'style','edit',...

'horizontalalignment','right',...

'position',[160 300 50 20]);

text2=uicontrol('parent',h0,...

'style','text',...

'string','月',...

'horizontalalignment','left',...

'position',[210 300 50 20]);

edit3=uicontrol('parent',h0,...

'style','edit',...

'horizontalalignment','right',...

'position',[280 300 50 20]);

text3=uicontrol('parent',h0,...

'style','text',...

'string','日',...

'horizontalalignment','left',...

'position',[330 300 50 20]);

edit4=uicontrol('parent',h0,...

'style','edit',...

'horizontalalignment','left',...

'position',[210 200 120 20]);

text4=uicontrol('parent',h0,...

'style','text',...

'string','查找的日期为',...

'horizontalalignment','right',...

'position',[110 200 100 20]);

edit5=uicontrol('parent',h0,...

'style','edit',...

'horizontalalignment','left',...

'position',[210 100 120 20]);

text1=uicontrol('parent',h0,...

'style','text',...

'string','该日处于',...

'horizontalalignment','left',...

'position',[160 100 50 20]);

button1=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[80 40 80 30],...

'string','开始',...

'callback',huidiao);

button2=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[220 40 80 30],...

'string','关闭',...

'callback','close');

实例56：图形效果（1）

h0=figure('toolbar','none',...

'position',[198 56 450 468],...

'name','实例56');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

l1=uimenu(gcf,'label','Draw figure',...

'tag','l1');

huidiao=[...

'if get(r1,''value'')==1,',...

'shading faceted,',...

'end,',...

'if get(r2,''value'')==1,',...

'shading flat,',...

'end,',...

'if get(r3,''value'')==1,',...

'shading interp,',...

'end,',...

'k=get(p1,''value'');,',...

'switch k,',...

'case 1,',...

'colormap(''cool''),',...

'case 2,',...

'colormap(''spring''),',...

'case 3,',...

'colormap(''summer''),',...

'case 4,',...

'colormap(''autumn''),',...

'case 5,',...

'colormap(''winter''),',...

'end'];

l11=uimenu('parent',l1,...

'label','Surface',...

'tag','l11',...

'callback',[...

'[x,y]=meshgrid(-8:0.5:8);,',...

'r=sqrt(x.^2+y.^2)+eps;,',...

'z=sin(r)./r;,',...

'surf(x,y,z),',...

huidiao]);

l12=uimenu('parent',l1,...

'label','Mesh',...

'tag','l12',...

'callback',[...

'mesh(peaks),',...

huidiao]);

l13=uimenu('parent',l1,...

'label','Membrane',...

'tag','l13',...

'callback',[...

'mesh(membrane),',...

huidiao]);

f1=uicontrol('parent',h0,...

'units','points',...

'listboxtop',0,...

'position',[12 6 100 101],...

'style','frame',...

'tag','f1');

r1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 58.5 72.75 16.5],...

'string','shading faceted',...

'style','radiobutton',...

'tag','r1',...

'value',1,...

'callback',[...

'shading faceted,',...

'set(r1,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);']);

r2=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 35.25 78.75 18.75],...

'string','shading flat',...

'style','radiobutton',...

'tag','r2',...

'value',0,...

'callback',[...

'shading flat,',...

'set(r2,''value'',1);,',...

'set(r1,''value'',0);,',...

'set(r3,''value'',0);']);

r3=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 12.75 71.25 18.75],...

'string','shading interp',...

'style','radiobutton',...

'tag','r3',...

'value',0,...

'callback',[...

'shading interp,',...

'set(r3,''value'',1);,',...

'set(r1,''value'',0);,',...

'set(r2,''value'',0);']);

t1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'fontsize',12,...

'listboxtop',0,...

'position',[14.25 75.75 90.75 22.5],...

'string','平滑处理',...

'style','text',...

'tag','t1');

t2=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'fontsize',12,...

'listboxtop',0,...

'position',[117 69 72.75 17.5],...

'string','设置色调',...

'style','text',...

'tag','t2');

p1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[116.25 39 72.75 20.25],...

'string','Cool|Spring|Summer|Autumn|Winter',...

'style','popupmenu',...

'tag','p1',...

'value',1,...

'callback',[...

'k=get(p1,''value'');,',...

'switch k,',...

'case 1,',...

'colormap(''cool''),',...

'case 2,',...

'colormap(''spring''),',...

'case 3,',...

'colormap(''summer''),',...

'case 4,',...

'colormap(''autumn''),',...

'case 5,',...

'colormap(''winter''),',...

'end']);

b1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[12 243 72.75 30.75],...

'string','关闭',...

'tag','b1',...

'callback','close');

b2=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[216.75 67.5 83.25 18.75],...

'string','Colorbar',...

'tag','b2',...

'callback','colorbar');

实例57：图形效果

h0=figure('toolbar','none',...

'position',[168 94.5 315 289.5],...

'name','实例57');

h1=axes('parent',h0,...

'position',[0.4 0.4 0.5 0.5],...

'visible','off');

f1=uicontrol('parent',h0,...

'style','frame',...

'position',[15 10 80 70],...

'string','dull',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','r1',...

'value',1,...

'callback',[...

'set(r1,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);,',...

'material dull']);

r1=uicontrol('parent',h0,...

'style','radiobutton',...

'position',[19.5 58.5 72.75 16.5],...

'string','dull',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','r1',...

'value',1,...

'callback',[...

'set(r1,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);,',...

'material dull']);

r2=uicontrol('parent',h0,...

'style','radiobutton',...

'position',[19.5 35.25 72.75 16.5],...

'string','metal',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','r2',...

'value',0,...

'callback',[...

'set(r2,''value'',1);,',...

'set(r1,''value'',0);,',...

'set(r3,''value'',0);,',...

'material metal']);

r3=uicontrol('parent',h0,...

'style','radiobutton',...

'position',[19.5 12.75 72.75 16.5],...

'string','shiny',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','r3',...

'value',0,...

'callback',[...

'set(r3,''value'',1);,',...

'set(r1,''value'',0);,',...

'set(r2,''value'',0);,',...

'material shiny']);

u1=uimenu('parent',h0,...

'label','绘图',...

'backgroundcolor',[0.753 0.753 0.753],...

'tag','u1',...

'callback',[...

'[x,y]=meshgrid(-8:0.5:8);,',...

'r=sqrt(x.^2+y.^2)+eps;,',...

'z=sin(r)./r;,',...

'surf(x,y,z),',...

'shading interp']);

b1=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[19.5 150 60 20],...

'string','light',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','b1',...

'callback','camlight headlight');

b2=uicontrol('parent',h0,...

'style','pushbutton',...

'position',[19.5 100 60 20],...

'string','关闭',...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'tag','b2',...

'callback','close');

实例58：可控制小球运动速度的用户界面

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例58');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

t=0:0.1:4\*pi;

x=sin(t);

y=cos(t);

plot(x,y)

axis equal

axis off

h=line('color',[1 0 0],...

'linestyle','.',...

'xdata',0,...

'ydata',1,...

'markersize',20,...

'erasemode','xor');

n=length(t);

i=1;

speed=0.01;

k=0;

b1huidiao=[...

'k=0;,',...

'while 1,',...

'set(h,''xdata'',x(i),''ydata'',y(i));,',...

'drawnow,',...

'pause(speed),',...

'i=i+1;,',...

'if i>n,',...

'i=1;,',...

'end,',...

'if k==1,',...

'break,',...

'end,',...

'end'];

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','开始',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 80 50 20],...

'callback',b1huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','停止',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 80 50 20],...

'callback','k=1;');

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 80 50 20],...

'callback',[...

'k=1;,',...

'close']);

s1=uicontrol('parent',h0,...

'units','points',...

'tag','s1',...

'style','slider',...

'value',50\*speed,...

'max',1,...

'min',0,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 115 190 20],...

'callback',[...

'm=get(s1,''value'');,',...

'speed=m/50;']);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'fontsize',15,...

'string','小球运动速度',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 135 190 20]);

实例59：设置坐标轴纵横轴比

h0=figure('name','实例59');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

u1=uimenu('parent',h0,...

'label','绘图',...

'backgroundcolor',[0.753 0.753 0.753],...

'tag','u1',...

'callback',[...

'[x,y]=meshgrid(-8:0.5:8);,',...

'r=sqrt(x.^2+y.^2)+eps;,',...

'z=sin(r)./r;,',...

'mesh(x,y,z),',...

'shading interp,',...

'axis normal']);

f1=uicontrol('parent',h0,...

'units','points',...

'listboxtop',0,...

'position',[12 6 100 150],...

'style','frame',...

'tag','f1');

t1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 130 72.75 16.5],...

'string','坐标纵横比',...

'style','text',...

'tag','t1');

r1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 110 72.75 16.5],...

'string','axis equal',...

'style','radiobutton',...

'tag','r1',...

'value',1,...

'callback',[...

'set(r1,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);,',...

'set(r4,''value'',0);,',...

'set(r5,''value'',0);,',...

'axis equal']);

r2=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 85 72.75 16.5],...

'string','axis square',...

'style','radiobutton',...

'tag','r2',...

'value',0,...

'callback',[...

'set(r2,''value'',1);,',...

'set(r1,''value'',0);,',...

'set(r3,''value'',0);,',...

'set(r4,''value'',0);,',...

'set(r5,''value'',0);,',...

'axis square']);

r3=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 60 72.75 16.5],...

'string','axis image',...

'style','radiobutton',...

'tag','r3',...

'value',0,...

'callback',[...

'set(r3,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r1,''value'',0);,',...

'set(r4,''value'',0);,',...

'set(r5,''value'',0);,',...

'axis image']);

r4=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 35 72.75 16.5],...

'string','axie vis3d',...

'style','radiobutton',...

'tag','r4',...

'value',0,...

'callback',[...

'set(r4,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);,',...

'set(r1,''value'',0);,',...

'set(r5,''value'',0);,',...

'axis vis3d']);

r5=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[19.5 10 72.75 16.5],...

'string','axis auto',...

'style','radiobutton',...

'tag','r5',...

'value',0,...

'callback',[...

'set(r5,''value'',1);,',...

'set(r2,''value'',0);,',...

'set(r3,''value'',0);,',...

'set(r4,''value'',0);,',...

'set(r1,''value'',0);,',...

'axis auto']);

b1=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[12 243 72.75 30.75],...

'string','关闭',...

'tag','b1',...

'callback','close');

b2=uicontrol('parent',h0,...

'units','points',...

'backgroundcolor',[0.753 0.753 0.753],...

'listboxtop',0,...

'position',[216.75 67.5 83.25 18.75],...

'string','Colorbar',...

'tag','b2',...

'callback','colorbar');

实例60：动态文本显示

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例60');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

str1='当前阻尼比＝';

z=0.52;

t=0:0.1:10;

y=step(1,[1 2\*z 1],t);

hline=plot(t,y);

grid on

r1=uicontrol('parent',h0,...

'units','points',...

'tag','r1',...

'style','radio',...

'string','grid on',...

'position',[30 120 60 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'value',1,...

'callback',[...

'grid on,',...

'set(r1,''value'',1);,',...

'set(r2,''value'',0)']);

r2=uicontrol('parent',h0,...

'units','points',...

'tag','r2',...

'style','radio',...

'string','grid on',...

'position',[30 95 60 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'value',0,...

'callback',[...

'grid off,',...

'set(r2,''value'',1);,',...

'set(r1,''value'',0)']);

s1=uicontrol('parent',h0,...

'units','points',...

'tag','s1',...

'style','slider',...

'value',z,...

'position',[100 95 150 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'max',1,...

'min',0,...

'callback',[...

'z=get(s1,''value'');,',...

'set(t1,''string'',[str1,sprintf(''%1.4g\'',z)]);,',...

'delete(hline),',...

'y=step(1,[1 2\*z 1],t);,',...

'hline=plot(t,y);,',...

'if get(r1,''value'')==1,',...

'grid on,',...

'end,',...

'if get(r2,''value'')==1,',...

'grid off,',...

'end']);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string',[str1,sprintf('%1.4g\',z)],...

'position',[100 120 150 20],...

'backgroundcolor',[0.75 0.75 0.75]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','关闭',...

'position',[80 50 80 30],...

'backgroundcolor',[0.75 0.75 0.75],...

'fontsize',15,...

'callback','close');

实例61：浏览流体数据

h0=figure('toolbar','none',...

'position',[198 56 450 468],...

'name','实例61');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

[x,y,z,v]=flow;

xmin=min(x(:));

ymin=min(y(:));

zmin=min(z(:));

xmax=max(x(:));

ymax=max(y(:));

zmax=max(z(:));

u1=uimenu('parent',h0,...

'tag','u1',...

'label','绘图',...

'background',[0.75 0.75 0.75]);

u11=uimenu('parent',u1,...

'tag','u11',...

'label','绕X轴旋转-45度',...

'background',[0.75 0.75 0.75],...

'callback',[...

'cla,',...

'hslice=surf(linspace(xmin,xmax,100),linspace(ymin,ymax,100),zeros(100));,',...

'rotate(hslice,[-1,0,0],-45),',...

'xd=get(hslice,''xdata'');,',...

'yd=get(hslice,''ydata'');,',...

'zd=get(hslice,''zdata'');']);

u12=uimenu('parent',u1,...

'tag','u12',...

'label','绕Y轴旋转-45度',...

'background',[0.75 0.75 0.75],...

'callback',[...

'cla,',...

'hslice=surf(linspace(xmin,xmax,100),linspace(ymin,ymax,100),zeros(100));,',...

'rotate(hslice,[0,-1,0],-45),',...

'xd=get(hslice,''xdata'');,',...

'yd=get(hslice,''ydata'');,',...

'zd=get(hslice,''zdata'');']);

b1=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','设置颜色',...

'position',[50 120 60 25],...

'callback',[...

'delete(hslice),',...

'h=slice(x,y,z,v,xd,yd,zd);,',...

'set(h,''facecolor'',''interp'',''edgecolor'',''none'',''diffusestrength'',0.8)']);

b2=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','添加切片1',...

'position',[240 120 60 25],...

'callback',[...

'hold on,',...

'hx=slice(x,y,z,v,xmax,[],[]);,',...

'set(hx,''facecolor'',''interp'',''edgecolor'',''none'')']);

b3=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','添加切片2',...

'position',[240 70 60 20],...

'callback',[...

'hold on,',...

'hy=slice(x,y,z,v,ymax,[],[]);,',...

'set(hy,''facecolor'',''interp'',''edgecolor'',''none'')']);

b4=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b4',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','添加切片3',...

'position',[240 20 60 20],...

'callback',[...

'hold on,',...

'hz=slice(x,y,z,v,zmax-1,[],[]);,',...

'set(hz,''facecolor'',''interp'',''edgecolor'',''none'')']);

b5=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b5',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','灯光效果',...

'position',[50 70 60 20],...

'callback',[...

'daspect([1 1 1]),',...

'axis tight,',...

'box on,',...

'view(-38.5,16),',...

'camzoom(1.4),',...

'camproj perspective,',...

'lightangle(-45,45)']);

b6=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b6',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','colorbar',...

'position',[50 20 60 20],...

'callback','colorbar(''horiz'')');

b7=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b7',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','关闭',...

'fontsize',14,...

'position',[145 75 60 20],...

'callback','close');

实例62：简单计算器

h0=figure('toolbar','none',...

'position',[200 60 220 240],...

'name','实例62');

b0=uicontrol('parent',h0,...

'units','points',...

'tag','b0',...

'style','pushbutton',...

'string','0',...

'fontsize',12,...

'position',[5 15 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0''&i==0,',...

'errordlg(''数字首位不能为0''),',...

'else,',...

'k=[k,''0''];,',...

'if k==''00'',',...

'k=''0'';,',...

'end,',...

'set(e1,''string'',k);,',...

'end']);

b15=uicontrol('parent',h0,...

'units','points',...

'tag','b15',...

'style','pushbutton',...

'string','=',...

'fontsize',12,...

'position',[45 15 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'k=get(e1,''string'');,',...

'if g==''+'',',...

'm=m+str2num(k);,',...

'end,',...

'if g==''-'',',...

'm=m-str2num(k);,',...

'end,',...

'if g==''\*'',',...

'm=m\*str2num(k);,',...

'end,',...

'if g==''/'',',...

'if k==''0'',',...

'errordlg(''除数不能为0'');,',...

'end,',...

'm=m/str2num(k);,',...

'end,',...

'set(e1,''string'',num2str(m));,',...

'i=0;']);

b11=uicontrol('parent',h0,...

'units','points',...

'tag','b11',...

'style','pushbutton',...

'string','+',...

'fontsize',12,...

'position',[85 15 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'i=i+1;,',...

'if i==1,',...

'm=str2num(k);,',...

'set(e1,''string'',''0'');,',...

'end,',...

'if i>1,',...

'k=get(e1,''string'');,',...

'if g==''+'',',...

'm=m+str2num(k);,',...

'end,',...

'if g==''-'',',...

'm=m-str2num(k);,',...

'end,',...

'if g==''\*'',',...

'm=m\*str2num(k);,',...

'end,',...

'if g==''/'',',...

'if k==''0'',',...

'errordlg(''除数不能为0'');,',...

'end,',...

'm=m/str2num(k);,',...

'end,',...

'set(e1,''string'',num2str(m));,',...

'i=1;,',...

'end,',...

'k=''0'';,',...

'g=''+'';']);

b16=uicontrol('parent',h0,...

'units','points',...

'tag','b16',...

'style','pushbutton',...

'string','关闭',...

'fontsize',12,...

'position',[125 15 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback','close');

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','1',...

'fontsize',12,...

'position',[5 45 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''1''];,',...

'set(e1,''string'',k);']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','2',...

'fontsize',12,...

'position',[45 45 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''2''];,',...

'set(e1,''string'',k);']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','3',...

'fontsize',12,...

'position',[85 45 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''3''];,',...

'set(e1,''string'',k);']);

b14=uicontrol('parent',h0,...

'units','points',...

'tag','b14',...

'style','pushbutton',...

'string','/',...

'fontsize',12,...

'position',[125 45 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'i=i+1;,',...

'if i==1,',...

'm=str2num(k);,',...

'set(e1,''string'',''0'');,',...

'end,',...

'if i>1,',...

'k=get(e1,''string'');,',...

'if k==''0'',',...

'errordlg(''除数不能为0'');,',...

'end,',...

'if ~(k==''0''),',...

'if g==''+'',',...

'm=m+str2num(k);,',...

'end,',...

'if g==''-'',',...

'm=m-str2num(k);,',...

'end,',...

'if g==''\*'',',...

'm=m\*str2num(k);,',...

'end,',...

'if g==''/'',',...

'm=m/str2num(k);,',...

'end,',...

'set(e1,''string'',num2str(m));,',...

'end,',...

'i=1;,',...

'end,',...

'k=''0'';,',...

'g=''/'';']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','4',...

'fontsize',12,...

'position',[5 75 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''4''];,',...

'set(e1,''string'',k);']);

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'style','pushbutton',...

'string','5',...

'fontsize',12,...

'position',[45 75 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''5''];,',...

'set(e1,''string'',k);']);

b6=uicontrol('parent',h0,...

'units','points',...

'tag','b6',...

'style','pushbutton',...

'string','6',...

'fontsize',12,...

'position',[85 75 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''6''];,',...

'set(e1,''string'',k);']);

b13=uicontrol('parent',h0,...

'units','points',...

'tag','b13',...

'style','pushbutton',...

'string','\*',...

'fontsize',12,...

'position',[125 75 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'i=i+1;,',...

'if i==1,',...

'm=str2num(k);,',...

'set(e1,''string'',''0'');,',...

'end,',...

'if i>1,',...

'k=get(e1,''string'');,',...

'if g==''+'',',...

'm=m+str2num(k);,',...

'end,',...

'if g==''-'',',...

'm=m-str2num(k);,',...

'end,',...

'if g==''\*'',',...

'm=m\*str2num(k);,',...

'end,',...

'if g==''/'',',...

'if k==''0'',',...

'errordlg(''除数不能为0'');,',...

'end,',...

'm=m/str2num(k);,',...

'end,',...

'set(e1,''string'',num2str(m));,',...

'i=1;,',...

'end,',...

'k=''0'';,',...

'g=''\*'';']);

b7=uicontrol('parent',h0,...

'units','points',...

'tag','b7',...

'style','pushbutton',...

'string','7',...

'fontsize',12,...

'position',[5 105 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''7''];,',...

'set(e1,''string'',k);']);

b8=uicontrol('parent',h0,...

'units','points',...

'tag','b8',...

'style','pushbutton',...

'string','8',...

'fontsize',12,...

'position',[45 105 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''8''];,',...

'set(e1,''string'',k);']);

b9=uicontrol('parent',h0,...

'units','points',...

'tag','b9',...

'style','pushbutton',...

'string','9',...

'fontsize',12,...

'position',[85 105 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'if k==''0'',',...

'k='''';,',...

'end,',...

'k=[k,''9''];,',...

'set(e1,''string'',k);']);

b12=uicontrol('parent',h0,...

'units','points',...

'tag','b12',...

'style','pushbutton',...

'string','-',...

'fontsize',12,...

'position',[125 105 35 20],...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'i=i+1;,',...

'if i==1,',...

'm=str2num(k);,',...

'set(e1,''string'',''0'');,',...

'end,',...

'if i>1,',...

'k=get(e1,''string'');,',...

'if g==''+'',',...

'm=m+str2num(k);,',...

'end,',...

'if g==''-'',',...

'm=m-str2num(k);,',...

'end,',...

'if g==''\*'',',...

'm=m\*str2num(k);,',...

'end,',...

'if g==''/'',',...

'if k==''0'',',...

'errordlg(''除数不能为0'');,',...

'end,',...

'm=m/str2num(k);,',...

'end,',...

'set(e1,''string'',num2str(m));,',...

'i=1;,',...

'end,',...

'k=''0'';,',...

'g=''-'';']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'fontsize',12,...

'string','0',...

'position',[45 135 115 20],...

'backgroundcolor',[1 1 1]);

k=get(e1,'string');

i=0;

m=0;

实例63：字母统计

h0=figure('toolbar','none',...

'position',[200 150 350 200],...

'name','实例63');

choose=1;

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'min',0,...

'max',2,...

'fontsize',12,...

'horizontalalignment','left',...

'position',[20 20 120 100]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','请输入字母（大小写皆可）：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 125 120 15]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','开始统计',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[180 100 60 20],...

'callback',[...

's=get(e1,''string'');,',...

'n=length(s);,',...

'jb=0;,',...

'jl=0;,',...

'for i=1:n,',...

'if (abs(s(i))>64)&(abs(s(i))<91),',...

'jb=jb+1;,',...

'end,',...

'if (abs(s(i))>96)&(abs(s(i))<123),',...

'jl=jl+1;,',...

'end,',...

'end,',...

'j=jb+jl;,',...

'if choose==1,',...

'msgbox([''共有字母'',num2str(j),''个！'',''其中大写字母'',num2str(jb),''个！''],''统计结果''),',...

'end,',...

'if choose==2,',...

'msgbox([''共有字母'',num2str(j),''个！'',''其中小写字母'',num2str(jl),''个！''],''统计结果'');,',...

'end']);

u1=uimenu('parent',h0,...

'label','字母分类',...

'backgroundcolor',[0.75 0.75 0.75],...

'tag','u1');

u11=uimenu('parent',u1,...

'label','大写字母',...

'backgroundcolor',[0.75 0.75 0.75],...

'tag','u11',...

'checked','on',...

'callback',[...

'set(u11,''checked'',''on'');,',...

'set(u12,''checked'',''off'');,',...

'choose=1;']);

u12=uimenu('parent',u1,...

'label','小写字母',...

'backgroundcolor',[0.75 0.75 0.75],...

'tag','u12',...

'callback',[...

'set(u12,''checked'',''on'');,',...

'set(u11,''checked'',''off'');,',...

'choose=2;']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','清除',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[180 60 60 20],...

'callback','set(e1,''string'','''')');

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[180 20 60 20],...

'callback','close');

实例64：图形的几何操作

h0=figure('toolbar','none',...

'position',[200 150 300 150],...

'name','实例64');

now=fix(clock);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'horizontal','right',...

'fontsize',12,...

'position',[20 80 30 20],...

'string',num2str(now(1)));

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','年',...

'backgroundcolor',[0.75 0.75 0.75],...

'fontsize',14,...

'position',[55 80 20 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'horizontal','right',...

'fontsize',12,...

'position',[80 80 30 20],...

'string',num2str(now(2)));

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','月',...

'backgroundcolor',[0.75 0.75 0.75],...

'fontsize',14,...

'position',[115 80 20 20]);

e3=uicontrol('parent',h0,...

'units','points',...

'tag','e3',...

'style','edit',...

'horizontal','right',...

'backgroundcolor',[1 1 1],...

'fontsize',12,...

'position',[140 80 30 20],...

'string',num2str(now(3)));

t3=uicontrol('parent',h0,...

'units','points',...

'tag','t3',...

'style','text',...

'string','日',...

'backgroundcolor',[0.75 0.75 0.75],...

'fontsize',14,...

'position',[175 80 20 20]);

e4=uicontrol('parent',h0,...

'units','points',...

'tag','e4',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'horizontal','right',...

'fontsize',12,...

'position',[20 30 100 20],...

'string',[num2str(now(4)),'：',num2str(now(5)),'：',num2str(now(6))]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','关闭',...

'fontsize',12,...

'position',[150 30 50 20],...

'callback',[...

'k=1;,',...

'close']);

k=0;

while find(get(0,'children'))==h0

now1=fix(clock)

set(e1,'string',num2str(now1(1)));

set(e2,'string',num2str(now1(2)));

set(e3,'string',num2str(now1(3)));

set(e4,'string',[num2str(now1(4)),'：',num2str(now1(5)),'：',num2str(now1(6))]);

pause(1)

if k==1

break

end

end

实例65：时间计算器

h0=figure('toolbar','none',...

'position',[200 150 300 250],...

'name','实例65');

huidiao=[...

'k=0;,',...

'fyear=str2num(get(e1,''string''));,',...

'fmonth=str2num(get(e2,''string''));,',...

'fday=str2num(get(e3,''string''));,',...

'syear=str2num(get(e4,''string''));,',...

'smonth=str2num(get(e5,''string''));,',...

'sday=str2num(get(e6,''string''));,',...

'month=[0 31 28 31 30 31 30 31 31 30 31 30 31];,',...

'k=fix(fyear/4);,',...

'if rem(fyear,4)==0,',...

'month(3)=29;,',...

'else,',...

'k=k+1;,',...

'month(3)=28;,',...

'end,',...

'sum=0;,',...

'for i=1:fmonth,',...

'sum=sum+month(i);,',...

'end,',...

'fdday=fyear\*365+sum+fday+k;,',...

'l=fix(syear/4);,',...

'if rem(syear,4)==0,',...

'month(3)=29;,',...

'else,',...

'l=l+1;,',...

'month(3)=28;,',...

'end,',...

'ssum=0;,',...

'for i=1:smonth,',...

'ssum=ssum+month(i);,',...

'end,',...

'sdday=syear\*365+ssum+sday+l;,',...

'dday=abs(fdday-sdday);,',...

'set(e7,''string'',[num2str(dday),''天'']);'];

t0=uicontrol('parent',h0,...

'units','points',...

'tag','t0',...

'style','text',...

'string','开始日期：',...

'horizontalalignment','right',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[10 160 80 20]);

t8=uicontrol('parent',h0,...

'units','points',...

'tag','t8',...

'style','text',...

'string','结束日期：',...

'horizontalalignment','right',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[115 160 80 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 130 50 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','年',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[75 130 20 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 100 50 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','月',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[75 100 20 20]);

e3=uicontrol('parent',h0,...

'units','points',...

'tag','e3',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 70 50 20]);

t3=uicontrol('parent',h0,...

'units','points',...

'tag','t3',...

'style','text',...

'string','日',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[75 70 20 20]);

e4=uicontrol('parent',h0,...

'units','points',...

'tag','e4',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[120 130 50 20]);

t4=uicontrol('parent',h0,...

'units','points',...

'tag','t4',...

'style','text',...

'string','年',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[175 130 20 20]);

e5=uicontrol('parent',h0,...

'units','points',...

'tag','e5',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[120 100 50 20]);

t5=uicontrol('parent',h0,...

'units','points',...

'tag','t5',...

'style','text',...

'string','月',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[175 100 20 20]);

e6=uicontrol('parent',h0,...

'units','points',...

'tag','e6',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[120 70 50 20]);

t6=uicontrol('parent',h0,...

'units','points',...

'tag','t6',...

'style','text',...

'string','日',...

'horizontalalignment','left',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[175 70 20 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','计算日期',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 40 50 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 10 50 20],...

'callback','close');

e7=uicontrol('parent',h0,...

'units','points',...

'tag','e7',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[120 10 80 20]);

t7=uicontrol('parent',h0,...

'units','points',...

'tag','t7',...

'style','text',...

'string','两个日期相差：',...

'horizontalalignment','right',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 30 110 20]);

实例66：数字操作

h0=figure('toolbar','none',...

'position',[200 150 350 200],...

'name','实例66');

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'position',[20 90 80 20],...

'fontsize',12,...

'horizontalalignment','right');

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'backgroundcolor',[1 1 1],...

'position',[160 90 80 20],...

'fontsize',12,...

'horizontalalignment','right');

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','初始数值（十进制）：',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[15 110 90 20],...

'fontsize',12,...

'horizontalalignment','left');

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','转换结果：',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[155 110 90 20],...

'fontsize',12,...

'horizontalalignment','left');

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','二进制',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 50 50 20],...

'callback',[...

'k=get(e1,''string'');,',...

'k2=str2num(k);,',...

'bk=dec2bin(k2);,',...

'set(e2,''string'',num2str(bk));']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','清除',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 50 50 20],...

'callback',[...

'set(e1,''string'','''');,',...

'set(e2,''string'','''');']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','十六进制',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 15 50 20],...

'callback',[...

'k=get(e1,''string'');,',...

'k3=str2num(k);,',...

'hk=dec2hex(k3);,',...

'set(e2,''string'',num2str(hk));']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 15 50 20],...

'callback','close');

实例67：图像的块操作

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例67');

h1=axes('parent',h0,...

'position',[0.2 0.45 0.6 0.5],...

'visible','off');

I=imread('tire.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','边沿操作',...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''tire.tif'');,',...

'f=inline(''max(x(:))'');,',...

'I2=nlfilter(I,[2 2],f);,',...

'imshow(I2)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','显示块操作',...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''tire.tif'');,',...

'f=inline(''uint8(round(mean2(x)\*ones(size(x))))'');,',...

'I2=blkproc(I,[6 6],f);,',...

'imshow(I2)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','交叠块操作',...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''tire.tif'');,',...

'f=inline(''uint8(round(mean2(x)\*ones(size(x))))'');,',...

'I2=blkproc(I,[6 6],[3 3],f);,',...

'imshow(I2)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','关闭',...

'fontsize',14,...

'position',[90 50 70 30],...

'callback','close');

实例68：图形的过滤操作

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','过滤操作');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

I=imread('blood1.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','均平过滤',...

'position',[50 120 50 20],...

'callback',[...

'cla,',...

'I=imread(''blood1.tif'');,',...

'h=fspecial(''average'',6);,',...

'I2=uint8(round(filter2(h,I)));,',...

'imshow(I2)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','Sobel过滤',...

'position',[150 120 50 20],...

'callback',[...

'cla,',...

'I=imread(''blood1.tif'');,',...

'h=fspecial(''sobel'');,',...

'I2=filter2(h,I);,',...

'imshow(I2,[])']);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','关闭',...

'position',[85 60 80 30],...

'callback','close');

实例69：图像的频率操作

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','频率操作');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

b=remez(10,[0 0.4 0.6 1],[1 1 0 0]);

h=ftrans2(b);

[H,W]=freqz(b,1,64,'whole');

colormap(jet(64))

plot(W/pi-1,fftshift(abs(H)))

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','频率变换',...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'b=remez(10,[0 0.4 0.6 1],[1 1 0 0]);,',...

'h=ftrans2(b);,',...

'[H,W]=freqz(b,1,64,''whole'');,',...

'colormap(jet(64)),',...

'freqz2(h,[32 32])']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','频率采样一',...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'Hd=zeros(11,11);,',...

'Hd(4:8,4:8)=1;,',...

'[f1,f2]=freqspace(11,''meshgrid'');,',...

'mesh(f1,f2,Hd),',...

'axis([-1 1 -1 1 0 1.2]),',...

'colormap(jet(64))']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','频率采样二',...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'Hd=zeros(11,11);,',...

'Hd(4:8,4:8)=1;,',...

'H=fsamp2(Hd);,',...

'freqz2(h,[32 32]),',...

'axis([-1 1 -1 1 0 1.2]),',...

'colormap(jet(64))']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','关闭',...

'fontsize',15,...

'position',[80 50 80 30],...

'callback','close');

实例70：函数变换

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','函数变换');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

I=imread('cameraman.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','图像压缩',...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''cameraman.tif'');,',...

'I2=im2double(I);,',...

'imshow(I2)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','图像解压',...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''cameraman.tif'');,',...

'I=im2double(I);,',...

'T=dctmtx(8);,',...

'B=blkproc(I,[8 8],''P1\*x\*P2'',T,T'');,',...

'mask=[1 1 1 1 0 0 0 0;,',...

'1 1 1 0 0 0 0 0;,',...

'1 1 0 0 0 0 0 0;,',...

'1 0 0 0 0 0 0 0;,',...

'0 0 0 0 0 0 0 0;,',...

'0 0 0 0 0 0 0 0;,',...

'0 0 0 0 0 0 0 0;,',...

'0 0 0 0 0 0 0 0];,',...

'B2=blkproc(B,[8 8],''P1.\*x'',mask);,',...

'I2=blkproc(B2,[8 8],''P1\*x\*P2'',T'',T);,',...

'imshow(I2)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','线条解析',...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''cameraman.tif'');,',...

'BW=edge(I);,',...

'imshow(BW)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','关闭',...

'fontsize',15,...

'position',[80 50 80 30],...

'callback','close');

实例71：RADON函数变换

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例71');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

P=phantom(256);

imshow(P)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','变换一',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'k=1;,',...

'theta1=0:10:170;,',...

'R1=radon(P,theta1);,',...

'imagesc(R1),',...

'colormap(hot),',...

'colorbar']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','变换二',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'k=2;,',...

'theta2=0:5:175;,',...

'R2=radon(P,theta2);,',...

'imagesc(R2),',...

'colormap(hot),',...

'colorbar']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','变换三',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'k=3;,',...

'theta3=0:2:178;,',...

'R3=radon(P,theta3);,',...

'imagesc(R3),',...

'colormap(hot),',...

'colorbar']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','原始图像',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[50 50 70 30],...

'callback',[...

'cla,',...

'if k==1,',...

'I1=iradon(R1,10);,',...

'imshow(I1),',...

'end,',...

'if k==2,',...

'I2=iradon(R2,5);,',...

'imshow(I2),',...

'end,',...

'if k==3,',...

'I3=iradon(R3,2);,',...

'imshow(I3),',...

'end']);

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[150 50 70 30],...

'callback','close');

实例72：图像分析（1）

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例72');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

I=imread('rice.tif');

imshow(I)

k=0;

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','图像轮廓图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 100 60 20],...

'callback',[...

'cla,',...

'k=1;,',...

'I=imread(''rice.tif'');,',...

'imcontour(I)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','SOBEL边界图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 60 20],...

'callback',[...

'cla,',...

'k=2;,',...

'I=imread(''rice.tif'');,',...

'BW=edge(I,''sobel'');,',...

'imshow(BW)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','CANNY边界图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[180 100 60 20],...

'callback',[...

'cla,',...

'k=3;,',...

'I=imread(''rice.tif'');,',...

'BW=edge(I,''canny'');,',...

'imshow(BW)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','灰度调整',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 50 60 20],...

'callback',[...

'cla,',...

'k=4;,',...

'I=imread(''rice.tif'');,',...

'J=imadjust(I,[0.15 0.9],[0 1]);,',...

'imshow(J,64)']);

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'style','pushbutton',...

'string','图像柱状图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[180 50 60 20],...

'callback',[...

'if k==0,',...

'figure,',...

'imhist(I,64),',...

'end,',...

'if k==1,',...

'imhist(I,64),',...

'end,',...

'if k==2,',...

'imhist(BW,64),',...

'end,',...

'if k==3,',...

'imhist(BW,64),',...

'end,',...

'if k==4,',...

'imhist(J),',...

'end']);

b6=uicontrol('parent',h0,...

'units','points',...

'tag','b6',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 50 60 20],...

'callback','close');

实例73：过滤图像

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例73');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

I=imread('eight.tif');

imshow(I)

u1=uimenu('parent',h0,...

'tag','u1',...

'label','添加噪声',...

'backgroundcolor',[0.75 0.75 0.75]);

u11=uimenu('parent',u1,...

'tag','u11',...

'label','SALT&PEPPER噪声',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u11,''checked'',''on'');,',...

'set(u12,''checked'',''off'');,',...

'cla,',...

'I=imnoise(I,''salt & pepper'',0.02);,',...

'imshow(I)']);

u12=uimenu('parent',u1,...

'tag','u12',...

'label','GAUSSIAN噪声',...

'backgroundcolor',[0.75 0.75 0.75],...

'callback',[...

'set(u12,''checked'',''on'');,',...

'set(u11,''checked'',''off'');,',...

'cla,',...

'I=imnoise(I,''gaussian'',0,0.005);,',...

'imshow(I)']);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','均平过滤',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'J=filter2(fspecial(''average'',3),I)/255;,',...

'imshow(J)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','中值过滤',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'J=medfilt2(I,[3 3]);,',...

'imshow(J)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','自适应过滤',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'J=wiener2(I,[5 5]);,',...

'imshow(J)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[90 50 70 30],...

'callback','close');

实例74：图像的区域处理

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例74');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

I=imread('trees.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','区域过滤一',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''trees.tif'');,',...

'imshow(I),',...

'BW=roipoly;,',...

'h=fspecial(''unsharp'');,',...

'I2=roifilt2(h,I,BW);,',...

'imshow(I2)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','区域过滤二',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'BW=imread(''text.tif'');,',...

'f=inline(''imadjust(x,[],[],0.01)'');,',...

'I2=roifilt2(I,BW,f);,',...

'imshow(I2)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','区域填充',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'load trees,',...

'I=ind2gray(X,map);,',...

'imshow(I),',...

'I2=roifill;,',...

'imshow(I2)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[90 50 70 30],...

'callback','close');

实例75：图像的颜色处置

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例75');

h1=axes('parent',h0,...

'position',[0.12 0.45 0.75 0.5],...

'visible','off');

I=imread('flowers.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','减少颜色',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'[X,map]=imread(''flowers.tif'');,',...

'[Y,map2]=imapprox(X,map,64);,',...

'image(Y),',...

'colormap(map2)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','颜色抖动',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''flowers.tif'');,',...

'[X,map]=rgb2ind(I,128,''nodither'');,',...

'imshow(X)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','颜色转换一',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'I=imread(''flowers.tif'');,',...

'Y=rgb2ntsc(I);,',...

'J=Y(:,:,1);,',...

'imshow(J)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 50 50 20],...

'callback','close');

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'style','pushbutton',...

'string','颜色转换三',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 50 50 20],...

'callback',[...

'cla,',...

'I=imread(''flowers.tif'');,',...

'J=rgb2ycbcr(I);,',...

'imshow(J)']);

b6=uicontrol('parent',h0,...

'units','points',...

'tag','b6',...

'style','pushbutton',...

'string','颜色转换二',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 50 50 20],...

'callback',[...

'cla,',...

'I=imread(''flowers.tif'');,',...

'J=rgb2hsv(I);,',...

'imshow(J)']);

实例76：交换显示图像

h0=figure('toolbar','none',...

'position',[198 56 500 500],...

'name','实例76');

h1=axes('parent',h0,...

'position',[0.15 0.5 0.7 0.5],...

'visible','off');

u1=uimenu('parent',h0,...

'label','加载图像',...

'backgroundcolor',[0.753 0.753 0.753],...

'tag','u1',...

'callback',[...

'[X,map]=imread(''800.jpg'',''jpg'');,',...

'Y=imresize(X,2);,',...

'image(Y),',...

'colormap(map),',...

'axis image,',...

'camva(camva/2.5),',...

'disp(''单击鼠标左键点取需要的点''),',...

'disp(''单击鼠标右键确定最后一个点''),',...

'while 1,',...

'[x,y]=ginput(1);,',...

'if ~strcmp(get(gcf,''selectiontype''),''normal''),',...

'break,',...

'end,',...

'ct=camtarget;,',...

'dx=x-ct(1);,',...

'dy=y-ct(2);,',...

'camdolly(dx,dy,ct(3),''movetarget'',''data''),',...

'drawnow,',...

'end']);

u2=uimenu('parent',h0,...

'label','关闭',...

'backgroundcolor',[0.753 0.753 0.753],...

'tag','u2',...

'callback','close');

实例77：矢量数据的显示

h0=figure('toolbar','none',...

'position',[198 56 450 468],...

'name','实例77');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

load wind

b1huidiao=[...

'cla,',...

'xmin = min(x(:));,',...

'xmax = max(x(:));,',...

'ymax = max(y(:));,',...

'zmin = min(z(:));,',...

'wind\_speed = sqrt(u.^2 + v.^2 + w.^2);,',...

'hsurfaces = slice(x,y,z,wind\_speed,[xmin,100,xmax],ymax,zmin);,',...

'set(hsurfaces,''FaceColor'',''interp'',''EdgeColor'',''none''),',...

'hcont = contourslice(x,y,z,wind\_speed,[xmin,100,xmax],ymax,zmin);,',...

'set(hcont,''EdgeColor'',[.7,.7,.7],''LineWidth'',.5),',...

'[sx,sy,sz] = meshgrid(80,20:10:50,0:5:15);,',...

'hlines = streamline(x,y,z,y,v,w,sx,sy,sz);,',...

'set(hlines,''LineWidth'',2,''Color'',''r''),',...

'view(3),',...

'daspect([2,2,1]),',...

'axis tight'];

b2huidiao=[...

'cla,',...

'wind\_speed = sqrt(u.^2 + v.^2 + w.^2);,',...

'hiso = patch(isosurface(x,y,z,wind\_speed,40));,',...

'isonormals(x,y,z,wind\_speed,hiso),',...

'set(hiso,''FaceColor'',''red'',''EdgeColor'',''none'');,',...

'hcap = patch(isocaps(x,y,z,wind\_speed,40),''FaceColor'',''interp'',''EdgeColor'',''none'');,',...

'colormap hsv,',...

'daspect([1,1,1]);,',...

'[f verts] = reducepatch(isosurface(x,y,z,wind\_speed,30),0.07);,',...

'h1 = coneplot(x,y,z,u,v,w,verts(:,1),verts(:,2),verts(:,3),3);,',...

'set(h1,''FaceColor'',''blue'',''EdgeColor'',''none'');,',...

'xrange = linspace(min(x(:)),max(x(:)),10);,',...

'yrange = linspace(min(y(:)),max(y(:)),10);,',...

'zrange = 3:4:15;,',...

'[cx,cy,cz] = meshgrid(xrange,yrange,zrange);,',...

'h2 = coneplot(x,y,z,u,v,w,cx,cy,cz,2);,',...

'set(h2,''FaceColor'',''green'',''EdgeColor'',''none'');,',...

'axis tight,',...

'box on,',...

'camproj perspective,',...

'camzoom(1.25),',...

'view(65,45),',...

'camlight(-45,45),',...

'lighting phong,',...

'set(hcap,''AmbientStrength'',.6)'];

b1=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','可视化',...

'position',[50 100 60 20],...

'callback',b1huidiao);

b2=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','锥形图',...

'position',[200 100 60 20],...

'callback',b2huidiao);

b3=uicontrol('parent',h0,...

'style','pushbutton',...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'string','关闭',...

'position',[125 60 60 20],...

'callback','close');

实例78：图像分析（2）

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例78');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

load imdemos flower

imshow(flower)

colormap(copper)

n=size(X,1);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','轮廓图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 100 50 20],...

'callback',[...

'cla,',...

'[X,map]=imread(''flowers.tif'');,',...

'X=double(flower);,',...

'X=(0.25/256)\*X;,',...

'C=copper(35);,',...

'set(gca,''colororder'',C(21:35,:),''box'',''on'');,',...

'imcontour(X,3);,',...

'axis([1 n 1 n]),',...

'axis(''ij''),',...

'axis(''square'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','伪彩图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 100 50 20],...

'callback',[...

'cla,',...

'D=-del2(X);,',...

'pcolor(D),',...

'axis([1 n 1 n]),',...

'axis(''ij''),',...

'shading(''flat'')']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','3D表面图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 100 50 20],...

'callback',[...

'cla,',...

'D=-del2(X);,',...

'surf(X,D),',...

'colormap(copper),',...

'axis([1 n 1 n 0 1]),',...

'axis(''ij''),',...

'shading(''flat''),',...

'view(-20,75);']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[80 50 80 30],...

'callback','close');

实例79：图像逻辑操作

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例79');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

load imdemos bacteria

imshow(bacteria)

k1=~(bacteria>100);

k2=filter2(fspecial('laplacian'),bacteria);

k3=(k2>-4)&k1;

k4=erode(k1)&(k3==0);

[r,c]=find(k4);

k5=bwselect(k1,c,r);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','二值分割图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 110 50 20],...

'callback',[...

'cla,',...

'imshow(k1)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','滤波结果图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 110 50 20],...

'callback',[...

'cla,',...

'imshow(k2)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','阈值化图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 110 50 20],...

'callback',[...

'cla,',...

'imshow(k3)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','目标的核',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[30 60 50 20],...

'callback',[...

'cla,',...

'imshow(k4)']);

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'style','pushbutton',...

'string','目标分割图',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 60 50 20],...

'callback',[...

'cla,',...

'imshow(k5)']);

b6=uicontrol('parent',h0,...

'units','points',...

'tag','b6',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 50 20],...

'callback','close');

实例80：进度条的使用

h0=figure('toolbar','none',...

'position',[198 56 350 450],...

'name','实例80');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.6 0.5],...

'visible','off');

I=imread('flowers.tif');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','转换',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[50 80 60 25],...

'callback',[...

'handlek=waitbar(0,''initializing......'');,',...

'pause(0.5),',...

'i=1;,',...

'while i<=100,',...

'waitbar(i/100,handlek,[num2str(i),''%finished''],handlek),',...

'i=i+1;,',...

'pause(0.05),',...

'end,',...

'pause(1.5),',...

'cla,',...

'delete(handlek),',...

'Y=rgb2ntsc(I);,',...

'J=Y(:,:,1);,',...

'imshow(J)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[150 80 60 25],...

'callback','close');

例81：MRI数据的显示

load mri

D = squeeze(D);

h0=figure('toolbar','none',...

'position',[198 56 450 468],...

'name','实例81');

h1=axes('parent',h0,...

'position',[0.3 0.45 0.5 0.5],...

'visible','off');

image\_num = 8;

image(D(:,:,image\_num))

axis image

colormap(map)

x = xlim;

y = ylim;

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[50 100 60 20],...

'string','二维图',...

'callback',[...

'cla,',...

'contourslice(D,[],[],image\_num),',...

'axis ij,',...

'xlim(x),',...

'ylim(y),',...

'daspect([1,1,1]),',...

'colormap(''default'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 100 60 20],...

'string','三维图',...

'callback',[...

'cla,',...

'phandles = contourslice(D,[],[],[1,12,19,27],8);,',...

'view(3);,',...

'axis tight,',...

'set(phandles,''LineWidth'',2)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[50 50 60 20],...

'string','立体图',...

'callback',[...

'cla,',...

'Ds = smooth3(D);,',...

'hiso = patch(isosurface(Ds,5),''FaceColor'',[1,.75,.65],''EdgeColor'',''none'');,',...

'hcap = patch(isocaps(D,5),''FaceColor'',''interp'',''EdgeColor'',''none'');,',...

'colormap(map),',...

'view(45,30),',...

'axis tight,',...

'daspect([1,1,.4]),',...

'lightangle(45,30),',...

'lighting phong,',...

'isonormals(Ds,hiso),',...

'set(hcap,''AmbientStrength'',.6),',...

'set(hiso,''SpecularColorReflectance'',0,''SpecularExponent'',50)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 50 60 20],...

'string','关闭',...

'callback','close');

实例82：图像类型转换

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例82');

h1=axes('parent',h0,...

'position',[0.2 0.45 0.5 0.5],...

'visible','off');

load earth

clims = [10 60];

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','强度图像',...

'position',[30 120 50 20],...

'callback',[...

'cla,',...

'imagesc(X,clims),',...

'colormap(gray)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','索引图像',...

'position',[100 120 50 20],...

'callback',[...

'cla,',...

'image(X),',...

'colormap(map),',...

'axis image']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','真彩图像',...

'position',[170 120 50 20],...

'callback',[...

'cla,',...

'image(X),',...

'axis image']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'style','pushbutton',...

'string','关闭',...

'position',[100 50 50 20],...

'callback','close');

实例83：特殊的图像显示技术

h0=figure('toolbar','none',...

'position',[198 56 350 468],...

'name','实例83');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','颜色条',...

'position',[30 120 50 20],...

'callback',[...

'cla,',...

'I = imread(''plane.jpg'');,',...

'imshow(I),',...

'colorbar']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'position',[100 120 50 20],...

'string','单帧显示',...

'callback',[...

'cla,',...

'load mri,',...

'imshow(D(:,:,:,7))']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','动画显示',...

'position',[30 60 50 20],...

'callback',[...

'cla,',...

'load mri,',...

'montage(D,map),',...

'mov=immovie(D,map);,',...

'colormap(map),',...

'movie(mov)']);

b4=uicontrol('parent',h0,...

'units','points',...

'tag','b4',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','纹理映射',...

'position',[170 60 50 20],...

'callback',[...

'cla,',...

'[x,y,z] = cylinder;,',...

'I = imread(''girls.jpg'');,',...

'warp(x,z,y,I);']);

b5=uicontrol('parent',h0,...

'units','points',...

'tag','b5',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','关闭',...

'position',[100 60 50 20],...

'callback','close');

b6=uicontrol('parent',h0,...

'units','points',...

'tag','b6',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','多帧显示',...

'position',[170 120 50 20],...

'callback',[...

'cla,',...

'load mri,',...

'montage(D,map)']);

实例84：图像的几何操作

h0=figure('toolbar','none',...

'position',[198 56 400 468],...

'name','实例84');

h1=axes('parent',h0,...

'position',[0.25 0.45 0.5 0.5],...

'visible','off');

I=imread('plane.jpg','jpg');

imshow(I)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','图像旋转',...

'position',[200 120 50 20],...

'callback',[...

'cla,',...

'k=str2num(get(e1,''string''));,',...

'I=imread(''plane.jpg'',''jpg'');,',...

'J=imrotate(I,k,''bilinear'');,',...

'imshow(J)']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','图像剪切',...

'position',[200 80 50 20],...

'callback',[...

'cla,',...

'imshow plane.jpg,',...

'I=imcrop;,',...

'imshow(I)']);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','pushbutton',...

'string','关闭',...

'position',[120 30 50 20],...

'callback','close');

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','edit',...

'horizontalalignment','right',...

'position',[50 80 100 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'backgroundcolor',[0.75 0.75 0.75],...

'style','text',...

'string','请输入旋转角度（0～90）度',...

'fontsize',12,...

'position',[40 100 130 20]);

实例85：拉个朗日插值

h0=figure('toolbar','none',...

'position',[200 50 350 450],...

'name','实例85');

h1=axes('parent',h0,...

'position',[0.10 0.45 0.8 0.5],...

'visible','off');

x=0:0.2:2\*pi;

y=sin(x);

plot(x,y)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','拉格朗日插值',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 60 70 20],...

'callback',[...

'cla,',...

'strn=get(e1,''string'');,',...

'n=str2num(strn);,',...

'i=1;,',...

'x=0:0.2:2\*pi;,',...

'for t=0:0.2:2\*pi,',...

'y(i)=sin(t);,',...

'L(i)=lag(t,n);,',...

'i=i+1;,',...

'end,',...

'plot(x,y,''b\*'',x,L,''r-''),',...

'legend(''sin(x)'',''插值函数'');,',...

'axis([0 7 -1.5 1.5])']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','误差比较',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 70 20],...

'callback',[...

'strn=get(e1,''string'');,',...

'n=str2num(strn);,',...

'strm=get(e2,''string'');,',...

'm=str2num(strm);,',...

'dd=abs(sin(m)-lag(m,n));,',...

'msgbox([''误差为：'',num2str(dd)],''计算结果'')']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'fontsize',12,...

'string','5',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[50 100 40 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'fontsize',12,...

'string','1.20',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[200 100 40 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','阶数：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 100 30 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','误差点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[160 100 40 20]);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 20 60 20],...

'callback','close');

例86：三次样条插值法

h0=figure('toolbar','none',...

'position',[200 50 350 450],...

'name','实例86');

h1=axes('parent',h0,...

'position',[0.10 0.45 0.8 0.5],...

'visible','off');

x=0:0.2:2\*pi;

y=sin(x);

plot(x,y)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','三次样条插值',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 60 70 20],...

'callback',[...

'y=0,',...

'sy=0,',...

'strn1=get(e2,''string'');,',...

'n1=str2num(strn1);,',...

'strn2=get(e3,''string'');,',...

'n2=str2num(strn2);,',...

'x=n1:0.2:n2;,',...

'i=1;,',...

'for t=n1:0.2:n2,',...

'y(i)=sin(t);,',...

'sy(i)=san(t,n1,n2);,',...

'i=i+1;,',...

'end,',...

'plot(x,y,''b\*'',x,sy,''r-''),',...

'axis([0 7 -1.5 1.5]),',...

'legend(''sin(x)'',''N-Hermite插值'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','误差比较',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 70 20],...

'callback',[...

'strdn1=get(e2,''string'');,',...

'n1=str2num(strdn1);,',...

'strdn2=get(e3,''string'');,',...

'n2=str2num(strdn2);,',...

'strdn=get(e1,''string'');,',...

'dn=str2num(strdn);,',...

'dd=abs(sin(dn)-san(dn,n1,n2));,',...

'msgbox([''误差为：'',num2str(dd)],''计算结果'')']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'fontsize',12,...

'string','1.20',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[200 100 40 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','误差点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[160 100 40 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'fontsize',12,...

'string','1.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 85 40 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','第一节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[15 105 50 20]);

e3=uicontrol('parent',h0,...

'units','points',...

'tag','e3',...

'style','edit',...

'fontsize',12,...

'string','3.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[100 85 40 20]);

t3=uicontrol('parent',h0,...

'units','points',...

'tag','t3',...

'style','text',...

'string','第二节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[95 105 50 20]);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 20 60 20],...

'callback','close');

实例87：NEWTON插值

h0=figure('toolbar','none',...

'position',[200 50 350 450],...

'name','实例87');

h1=axes('parent',h0,...

'position',[0.10 0.45 0.8 0.5],...

'visible','off');

x=0:0.2:2\*pi;

y=sin(x);

plot(x,y)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','牛顿插值',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 60 70 20],...

'callback',[...

'strn=get(e1,''string'');,',...

'n=str2num(strn);,',...

'x=0:0.2:2\*pi;,',...

'i=1;,',...

'for t=0:0.2:2\*pi,',...

'y(i)=sin(t);,',...

'ynt(i)=newton(t,n);,',...

'i=i+1;,',...

'end,',...

'plot(x,y,''b\*'',x,ynt,''r-''),',...

'axis([0 7 -1.5 1.5]),',...

'legend(''sin(x)'',''牛顿插值'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','误差比较',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 70 20],...

'callback',[...

'strn=get(e1,''string'');,',...

'n=str2num(strn);,',...

'strdn=get(e2,''string'');,',...

'dn=str2num(strdn);,',...

'dd=abs(sin(dn)-newton(dn,n));,',...

'msgbox([''误差为：'',num2str(dd)],''计算结果'')']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'fontsize',12,...

'string','5',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[50 100 40 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'fontsize',12,...

'string','1.20',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[200 100 40 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','节点数：（<6）',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[10 100 40 30]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','误差点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[160 100 40 20]);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 20 60 20],...

'callback','close');

实例88：hermite插值

h0=figure('toolbar','none',...

'position',[200 50 350 450],...

'name','实例88');

h1=axes('parent',h0,...

'position',[0.10 0.45 0.8 0.5],...

'visible','off');

x=0:0.2:2\*pi;

y=sin(x);

plot(x,y)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','Hermite插值',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 60 70 20],...

'callback',[...

'strn1=get(e2,''string'');,',...

'n1=str2num(strn1);,',...

'strn2=get(e3,''string'');,',...

'n2=str2num(strn2);,',...

'x=0:0.2:2\*pi;,',...

'i=1;,',...

'for t=0:0.2:2\*pi,',...

'y(i)=sin(t);,',...

'ynt(i)=hermite(t,n1,n2);,',...

'i=i+1;,',...

'end,',...

'plot(x,y,''b\*'',x,ynt,''r-''),',...

'axis([0 7 -1.5 1.5]),',...

'legend(''sin(x)'',''Hermite插值'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','误差比较',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 70 20],...

'callback',[...

'strn1=get(e2,''string'');,',...

'n1=str2num(strn1);,',...

'strn2=get(e3,''string'');,',...

'n2=str2num(strn2);,',...

'dn=str2num(strdn);,',...

'dd=abs(sin(dn)-hermite(dn,n1,n2));,',...

'msgbox([''误差为：'',num2str(dd)],''计算结果'')']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'fontsize',12,...

'string','1.20',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[200 100 40 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','误差点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[160 100 40 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'fontsize',12,...

'string','1.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 85 40 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','第一节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[15 105 50 20]);

e3=uicontrol('parent',h0,...

'units','points',...

'tag','e3',...

'style','edit',...

'fontsize',12,...

'string','3.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[100 85 40 20]);

t3=uicontrol('parent',h0,...

'units','points',...

'tag','t3',...

'style','text',...

'string','第二节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[95 105 50 20]);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 20 60 20],...

'callback','close');

实例89：mewton形式的hermite插值

h0=figure('toolbar','none',...

'position',[200 50 350 450],...

'name','实例89');

h1=axes('parent',h0,...

'position',[0.10 0.45 0.8 0.5],...

'visible','off');

x=0:0.2:2\*pi;

y=sin(x);

plot(x,y)

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','N-Hermite插值',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 60 70 20],...

'callback',[...

'strn1=get(e2,''string'');,',...

'n1=str2num(strn1);,',...

'strn2=get(e3,''string'');,',...

'n2=str2num(strn2);,',...

'x=0:0.2:2\*pi;,',...

'i=1;,',...

'for t=0:0.2:2\*pi,',...

'y(i)=sin(t);,',...

'ynh(i)=nhermite(t,n1,n2);,',...

'i=i+1;,',...

'end,',...

'plot(x,y,''b\*'',x,ynh,''r-''),',...

'axis([0 7 -1.5 1.5]),',...

'legend(''sin(x)'',''N-Hermite插值'')']);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'style','pushbutton',...

'string','误差比较',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[170 60 70 20],...

'callback',[...

'strdn1=get(e2,''string'');,',...

'n1=str2num(strdn1);,',...

'strdn2=get(e3,''string'');,',...

'n2=str2num(strdn2);,',...

'strdn=get(e1,''string'');,',...

'dn=str2num(strdn);,',...

'dd=abs(sin(dn)-nhermite(dn,n1,n2));,',...

'msgbox([''误差为：'',num2str(dd)],''计算结果'')']);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'fontsize',12,...

'string','1.20',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[200 100 40 20]);

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','误差点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[160 100 40 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'fontsize',12,...

'string','1.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[20 85 40 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','第一节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[15 105 50 20]);

e3=uicontrol('parent',h0,...

'units','points',...

'tag','e3',...

'style','edit',...

'fontsize',12,...

'string','3.00',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[100 85 40 20]);

t3=uicontrol('parent',h0,...

'units','points',...

'tag','t3',...

'style','text',...

'string','第二节点：',...

'fontsize',12,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[95 105 50 20]);

b3=uicontrol('parent',h0,...

'units','points',...

'tag','b3',...

'style','pushbutton',...

'string','关闭',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[100 20 60 20],...

'callback','close');

实例90：平方根法

h0=figure('toolbar','none',...

'position',[200 150 450 250]);

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'r=[a,b];,',...

'n=4;,',...

'tic,',...

'x=ch(a,b,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'msgbox([''X＝['',num2str(x(1)),num2str(x(2)),num2str(x(3)),num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[290 100 30 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 125 80 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','平方根法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例91：gauss消去法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例91');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 2 4 1 7;2 3 0 1 8;4 1 7 6 1;1 1 0 2 1;1 3 0 1 1;];,',...

'b=[15 14 19 5 6]'';,',...

'r=[a,b];,',...

'n=5;,',...

'tic,',...

'x=gauss(r,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'msgbox([''X＝['',num2str(x(1)),num2str(x(2)),num2str(x(3)),num2str(x(4)),num2str(x(5)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[290 100 30 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 125 80 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','GS消去法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例92：三角分解法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例92');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 2 4 1 7;2 3 0 1 8;4 1 7 6 1;1 1 0 2 1;1 3 0 1 1;];,',...

'b=[15 14 19 5 6]'';,',...

'n=5;,',...

'tic,',...

'x=dirang(a,b,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'msgbox([''X＝['',num2str(x(1)),num2str(x(2)),num2str(x(3)),num2str(x(4)),num2str(x(5)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[270 100 50 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 125 80 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','三角分解法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例93：jacobi迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例93');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'n=4;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=jac(a,b,n,u);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'','',num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','Jacobi 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例94：gauss迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例94');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'n=4;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=gs(a,b,n,u);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'','',num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','GS 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例95：sor迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例95');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'n=4;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=sor(a,b,n,u);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'','',num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','SOR 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例96：最速下降法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例96');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'n=4;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=cg(a,b,n,u);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'','',num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','最速下降法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例97：共额梯度法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例97');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('abmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'a=[1 0 3 0;0 2 1 2;3 1 15 0;0 2 0 4;];,',...

'b=[1 6 5 8]'';,',...

'n=4;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=getd(a,b,n,u);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'','',num2str(x(4)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 100 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','共轭梯度法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例98：mewton迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例98');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('fabmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'n=3;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=nnewton(u,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','非线性方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 150 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','Newton 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例99：broyden迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例99');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('fabmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'n=3;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=broyden(u,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','非线性方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 150 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','Broyden 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 60 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 60 20],...

'callback','close');

实例100：逆broyden迭代法

h0=figure('toolbar','none',...

'position',[200 150 450 250],...

'name','实例100');

h1=axes('parent',h0,...

'position',[0.05 0.15 0.65 0.6],...

'visible','off');

I=imread('fabmatrix.bmp','bmp');

image(I)

axis off

huidiao=[...

'n=3;,',...

'u=zeros(n,1);,',...

'tic,',...

'[x,k]=fbroyden(u,n);,',...

'time1=toc;,',...

'T=num2str(time1);,',...

'set(e1,''string'',[T,''秒'']);,',...

'set(e2,''string'',num2str(k));,',...

'msgbox([''X＝['',num2str(x(1)),'' '',num2str(x(2)),'' '',num2str(x(3)),'']''],''方程组的解'');'];

t1=uicontrol('parent',h0,...

'units','points',...

'tag','t1',...

'style','text',...

'string','非线性方程组如下：',...

'fontsize',15,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[20 150 150 20]);

e1=uicontrol('parent',h0,...

'units','points',...

'tag','e1',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 130 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','计算时间：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 130 50 20]);

e2=uicontrol('parent',h0,...

'units','points',...

'tag','e2',...

'style','edit',...

'horizontalalignment','right',...

'backgroundcolor',[1 1 1],...

'position',[295 100 35 20]);

t2=uicontrol('parent',h0,...

'units','points',...

'tag','t2',...

'style','text',...

'string','迭代步数：',...

'fontsize',10,...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[240 100 50 20]);

b1=uicontrol('parent',h0,...

'units','points',...

'tag','b1',...

'style','pushbutton',...

'string','逆Broyden 迭代法',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 60 70 20],...

'callback',huidiao);

b2=uicontrol('parent',h0,...

'units','points',...

'tag','b2',...

'string','关闭',...

'style','pushbutton',...

'backgroundcolor',[0.75 0.75 0.75],...

'position',[250 30 70 20],...

'callback','close');

XOR

function [x,st]=sor(a,b,n,x1)

D=zeros(n,n);

L=zeros(n,n);

U=zeros(n,n);

for i=1:n

for j=1:n

if j==i

D(i,j)=a(i,j);

end

if j<i

L(i,j)=-a(i,j);

end

if j>i

U(i,j)=-a(i,j);

end

end

end

opt=oumiga(a);

Bsor=inv(D-opt\*L)\*[(1-opt)\*D+opt\*U];

fsor=opt\*inv(D-opt\*L)\*b;

k=1;

x2=Bsor\*x1+fsor;

e=x2-x1;

while norm(e,2)>1e-6

k=k+1;

x1=x2;

x2=Bsor\*x1+fsor;

e=x2-x1;

end

x=x2;

st=k;