**combine.m**

function DF = combine

[P1 P2] = readin;

for i = 1 : 418

j = fix((i+1)/2);

if(mod(i, 2) == 1)

T = [P1{j}; fliplr(P2{j})];

else

% disp(j);

T = [P2{j}; fliplr(P1{j})];

end

imwrite(T, num2str(i, 't%d.bmp'));

end

[DF11 DF12 DF21 DF22] = difference;

DF = zeros(418, 418);

for i = 1 : 418

for j = 1 : 418

ii = fix((i+1)/2);

jj = fix((j+1)/2);

if(mod(i, 2) == mod(j, 2))

DF(i, j) = DF11(ii, jj) + DF22(ii, jj);

else

DF(i, j) = DF12(ii, jj) + DF21(ii, jj);

end

end

end

end

**deal.m**

function TT = deal

[P1 P2] = readin;

TT = [];

for k = 1 : 209

A = P1{k};

I = deal\_with(A);

if isempty(I)

disp(k)

end

for i = I

for j = 1 : 72

A(i, j) = 0;

end

end

for i = 2 : length(I)

t = I(i) - I(i-1);

if(t<100)

TT = [TT t];

end

end

imwrite(A, num2str(k, 'temp%da.bmp'));

A = P2{k};

I = deal\_with(A);

if isempty(I)

disp(k)

end

for i = I

for j = 1 : 72

A(i, j) = 0;

end

end

for i = 2 : length(I)

t = I(i) - I(i-1);

if(t<100)

TT = [TT t];

end

end

imwrite(A, num2str(k, 'temp%db.bmp'));

end

% imshow(A);

end

**deal\_with.m**

function I = deal\_with(A)

B = sum(A<255, 2);

last = 300;

I = [];

for i = 180 : -1 : 3

if B(i) <= 13 && (B(i-1) - B(i) >= 10 || B(i-2) - B(i) >= 10) && last - i > 12

% disp(i);

last = i;

I = [i I];

end

end

% disp([k length(I)]);

% disp(I);

if length(I) > 2

if(I(1) < 10 && I(2) - I(1) < 55)

I = I(2:length(I));

end

II = [];

for j = 1 : length(I)

cnt = 0;

for l = 1 : length(I)

% disp(abs(abs(I(l)-I(j)) / 63.0 - 1));

t = abs(I(l)-I(j)) / 63.0;

% disp(t);

if(t > 0.5)

t = abs(t / round(t) - 1);

else

t = 1;

end

% disp([j l t]);

if(l ~= j && t > 0.079)

cnt = cnt + 1;

end

end

% disp([cnt]);

if(cnt <= length(I) / 2)

II = [II I(j)];

end

end

I = II;

end

% disp(I);

if length(I) > 3

II = [];

for j = I

if(B(j) > 0)

II = [II j];

end

end

I = II;

end

end

**difference.m**

function [DF11 DF12 DF21 DF22] = difference

[P1 P2] = readin;

DF11 = zeros(209, 209);

DF12 = zeros(209, 209);

DF21 = zeros(209, 209);

DF22 = zeros(209, 209);

D1 = [];

D2 = [];

for i = 1 : 209

D1{i} = deal\_with(P1{i});

D2{i} = deal\_with(P2{i});

end

for i = 1 : 209

for j = 1 : 209

DF11(i, j) = calc\_diff(D1{i}, D1{j});

DF12(i, j) = calc\_diff(D1{i}, D2{j});

DF21(i, j) = calc\_diff(D2{i}, D1{j});

DF22(i, j) = calc\_diff(D2{i}, D2{j});

end

end

end

function x = calc\_diff(D1, D2)

x = 1e10;

for y1 = D1

for y2 = D2

t = mod(y2 - y1, 63);

x = min([x t 63-t]);

end

end

end

**find\_left.m**

function a = find\_left

A = readint;

T = [];

for i = 1:418

B = A{i};

if(isempty(find(B(:,1)<255, 1)))

T = [T i];

end

end

a = T;

end

**readin.m**

function [A B]= readin

A=[];

B=[];

for i = 0:208

A{i+1} = imread(num2str(i,'%03da.bmp'));

B{i+1} = imread(num2str(i,'%03db.bmp'));

end

end

**readint.m**

function [A B]= readin

A=[];

for i = 1:418

A{i} = imread(num2str(i,'t%d.bmp'));

end

end

**rebuild.cpp**

#include <cstdio>

#include <cstdlib>

#include <cstring>

#include <cmath>

#include <algorithm>

#define maxn 440

using namespace std;

const int n = 418;

double g[maxn][maxn];

int match[maxn],m,bd[maxn][maxn];

bool ur[maxn];

struct A

{

double v;

int x,y;

};

A arr[maxn\*maxn];

int cmp(const A &x, const A &y)

{

return x.v>y.v;

}

void adjust()

{

g[72][320] = 1.1;

g[248][220] =1.1;

g[188][265] =1.1;

g[397][363] = 1.1;

g[319][71] = 1.1;

g[222][349] = 1.1;

}

int main()

{

freopen("LR.txt", "r", stdin);

for(int i=1;i<=n;i++)

for(int j=1;j<=n;j++)

scanf("%lf", g[i]+j);

adjust();

for(int i=1;i<=n;i++)

for(int j=1;j<=n;j++){

//scanf("%lf", g[i]+j);

arr[m].v = g[i][j];

arr[m].x = i;

arr[m++].y = j;

}

sort(arr, arr+m, cmp);

freopen("DF.txt", "r", stdin);

for(int i=1;i<=n;i++)

for(int j=1;j<=n;j++)

scanf("%d", bd[i]+j);

for(int i=0;i<m;i++)

if(!match[arr[i].x] && !ur[arr[i].y] && (bd[arr[i].x][arr[i].y]<7||arr[i].v>=0.95))

{

match[arr[i].x] = arr[i].y;

ur[arr[i].y] = 1;

}

freopen("match.txt", "w", stdout);

for(int i=1;i<=n;i++)

printf("%d%c", g[i][match[i]]==0?0:match[i], i < n ? ',' : ' ');

return 0;

}

**rebuild.m**

function Ret = rebuild

C = zeros(1,418);

B = similar;

A = readint;

global U;

U = zeros(1,418);

% for i = 1:418

% m = max(B(i,:));

% t = find(B(i,:)==m);

% [t1, t2] = size(t);

% if t2 > 1 || B(i, t) == 0

% C(i) = 0;

% else

% C(i) = t;

% end

% end

C = csvread('match.txt');

T = [find\_left];

for i = 1 : length(T)

do\_rebuild\_lr(A, B, C, T(i), i);

end

disp(sum(U));

Ret = U;

% disp(U);

end

function do\_rebuild\_lr(A, B, C, t, idx)

T = [];

TR = [];

global U; U(t)=1;

while true

T = [T A{t}];

TR = [TR t];

t=C(t);

% disp(t);

if(t==0)

break;

end;

if(U(t))

disp(t);

disp('used', t);

break;

end;

U(t) = 1;

end

imwrite(T, num2str(idx, 'r%d.bmp'));

% imshow(T);

disp(TR);

csvwrite(num2str(idx, 'r%d.txt'), TR);

end

function do\_rebuild\_rl(A, B, C, t, idx)

T = [];

TR = [];

global U;

while true

T = [A{t}, T];

TR = [t, TR];

U(t) = 1;

% disp(size(t));

X = find(C == t);

% disp(X);

if(isempty(X))

break;

end

if(length(X) > 1)

BB = B(X,t);

t = X(BB==max(BB));

if(length(t)>1)

t=t(1);

end

else

t=X;

end

if(t==0)

break;

end;

end

imwrite(T, num2str(idx, 'r%d.bmp'));

% imshow(T);

disp(TR);

end

**rewrite.m**

function rewrite

[P1 P2] = readin;

for i = 1 : 22

T1 = [];

T2 = [];

I = csvread(num2str(i, 'r%d.txt'));

for j = I

jj = fix((j+1)/2);

if(mod(j,2) == 1)

T1 = [T1 P1{jj}];

T2 = [P2{jj} T2];

else

T1 = [T1 P2{jj}];

T2 = [P1{jj} T2];

end

end

imwrite([T1 T2], num2str(i, 'rr%d.bmp'));

end

end

**similar.m**

function LR = similar

A = readint;

LR = zeros(418,418);

for i = 1:418

for j = 1:418

if i ~= j

LR(i,j) = sim\_lr(A{i}, A{j});

end

end

end

end

function [result, tot] = calc\_sim(A, B)

tot = 0;

hit = 0;

for i = 1:length(A)

if A(i) < 255

tot = tot + 1;

if ((B(i) < 255) || ( i-1 > 0 && B(i-1)<255 ) || ( i+1 <= length(A) && B(i+1)<255 ))

hit = hit + 1;

end

end

end

if tot == 0

result = 0;

else

result = hit/tot;

end

end

function result = sim\_lr(A, B)

[result1, w1] = calc\_sim(A(:, 72), B(:, 1));

[result2, w2] = calc\_sim(B(:, 1), A(:, 72));

if(w1+w2==0)

result = 0;

else

result = (result1\*w1 + result2\*w2) / (w1+w2);

end

%result = result1;

end

function result = sim\_ud(A, B)

[result1, w1] = calc\_sim(A(180, :), B(1, :));

[result2, w2] = calc\_sim(B(1, :), A(180, :));

if(w1+w2==0)

result = 0;

else

result = (result1\*w1 + result2\*w2) / (w1+w2);

end

end

**a.m**

function B = a

A=[];

for i = 1:22

A{i} = imread(num2str(i,'rr%d.bmp'));

end

B = zeros(22,22);

for i = 1:22

for j = 1:22

if i ~= j

B(i,j) = sim(A{i}, A{j});

end

end

end

C = zeros(1,22);

for i = 1:22

m = max(B(i,:));

t = find(B(i,:)==m);

[t1, t2] = size(t);

% disp(size(t));

if t2 > 1

C(i) = 0;

else

C(i) = t;

end

end

% disp(C);

K = find(C==0);

% disp(K);

for k = 1 : length(K)

t = K(k);

T = [A{t}];

TT = [t];

while true

if(isempty(t))

break;

end

[tt, t] = find(C == t);

disp(t);

T = [A{t}; T];

TT = [t TT];

end

if(~isempty(T))

imwrite(T, num2str(k,'rrr%d.bmp'));

end

R = [];

for j = TT

disp(j);

X = csvread(num2str(j, 'r%d.txt'));

R = [R;X];

end

csvwrite(num2str(k, 'rrr%d.txt'), R);

% imshow(T);

end

end

function result = sim(A, B)

tot = 0;

hit = 0;

for i = 1:2736

if A(180,i) < 255

tot = tot + 1;

if B(1,i) < 255

hit = hit + 1;

end

end

end

if tot == 0

result = 0;

else

result = hit/tot;

end

end