

Lab2 - Engraving SDU Logo

In this lab you learn how to paste an image into another larger image nicely.

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Attempt 1

Here we forcefully paste logo and lose all information about the background of the picture.

```
L = imread('sdulogo122white.jpg');  
I = imread('sdubuilding.jpg');  
[h,w,~] = size(L);  
I(21:20+h,81:80+w,:)=L;  
imshow(I);
```



Attempt 2

Let's add the logo image with the original image. As you will see there is an advantage of having black background for a logo image as it adds nicely without screwing the original picture (**why?**). But the logo's color has changed. That's sad.

```
clear all  
L1 = imread('sdulogo122white.jpg');  
L2 = imread('sdulogo122black.jpg');
```

```

I = imread('sdubuilding.jpg');
[h1,w1,~] = size(L1);
[h2,w2,~] = size(L2);
I(21:20+h1,81:80+w1,:)=I(21:20+h1,81:80+w1,:)+L1;
I(21:20+h2,281:280+w2,:)=I(21:20+h2,281:280+w2,:)+L2;
imshow(I);

```



Attempt 3

We can add weightage to the logo and the original picture (kind of an opacity). The result is nice but still there is space for improvement.

```

clear all
L1 = imread('sdulogo122white.jpg');
L2 = imread('sdulogo122black.jpg');
I = imread('sdubuilding.jpg');
[h1,w1,~] = size(L1);
[h2,w2,~] = size(L2);
I(21:20+h1,81:80+w1,:)=I(21:20+h1,81:80+w1,:)+0.1*L1;
I(21:20+h2,281:280+w2,:)=I(21:20+h2,281:280+w2,:)+0.1*L2;
imshow(I);

```



Attempt 4

Let's loop and explicitly select which pixels we want and which pixels we don't want in the resultant image.

- For the "white" logo we assume that pixels with any of the red, green or blue components greater than 245 are "white" and we remove them
- For the "black" logo we assume that pixels with any of the red, green or blue components less than 15 are "black" and we remove them

```
clear all
A = imread('sdubuilding.jpg');
B = imread('sdulogo122white.jpg');
C = imread('sdulogo122black.jpg');
[a,b,~] = size(B);
for i=1:a
    for j=1:b
        if B(i,j,1)<245 || B(i,j,2)<245 || B(i,j,3)<245
            A(20+i,80+j,:)=B(i,j,:);
        end
    end
end

[c,d,~] = size(C);
for i=1:c
    for j=1:d
        if C(i,j,1)>15 || C(i,j,2)>15 || C(i,j,3)>15
            A(20+i,280+j,:)=C(i,j,:);
        end
    end
end
imshow(A);
```



Assignment

Try to add "white" and "black" logos of SDU to **boldt.jpg** file, one in the skies and one in the sea. Try to not use for loops. Read [Using Logicals in Array Indexing](#) for insight.



Lab2stub is simple:

```
%% Lab2 Assignment
% Student: *Bob Godgivenson @ EN4-Z-01*
%%
% Show all your play here...
```

