
Subject: Where is the error in this DCT-approach?

Posted by [rogass](#) on Tue, 27 Oct 2009 21:02:23 GMT

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Hi there,

I cant find the error in this little program to compute forward and backward the discrete cosine transform of an image. It seems to be also difficult to avoid the loops. Please help me. Here is the code:

```
function cr_dct,dat,mode,shiftit=shiftit

sz = size(dat,/dimensions)
dim = n_elements(sz)
mode = n_elements(mode) eq 0? -1 : -2>mode<2
shiftit = keyword_set(shiftit)? 1 : 0

case dim of

1 : begin

    end
2: begin
    x = sz[0]
    y = sz[1]
    c = fltarr(sz)
    sqrtx = sqrt(x)
    sqrt y = sqrt(y)
    sqrt2 = sqrt(2)
    sqrt2x = sqrt2/sqrtx
    sqrt2y = sqrt2/sqrt y
    arr = c
    indarr = (((l=findgen(x>y)))#(2.*l+1))*!dior
    cosxarr = cos(indarr/(2.*x))
    cosyarr = x eq y? cosxarr : cos(indarr/(2.*y))
    for u=0,x-1 do begin
        for v=0,y-1 do begin
            alphau = u eq 0 ? sqrtx : sqrt2x
            alphav = v eq 0 ? sqrt y : sqrt2y
            tmparr = arr
            ;tmparr=dat*((r=rebin(cosxarr[u,*],x,y))) * $
            ; (x eq y? r: rebin(cosyarr[v,*],x,y))
            ;tmparr=(dat)[*] * ((r=(rebin(cosxarr[u,*],x,y))[*])) * $
            ; (x eq y? r : (rebin(cosxarr[v,*],x,y))[*])

            for i=0,x-1 do $
                for j=0,y-1 do $
                    tmparr[i,j] = mode eq -1? $
                        dat[i,j]*cosxarr[u,i]*cosyarr[v,j] : $
```

```

        alphau*alphav*dat[i,j]*cosxarr[u,i]*cosyarr[v,j]
c[u,v] = mode eq -1? total(tmparr)*alphau*alphav : total(tmparr)

    endfor
endfor
c = shiftit? shift(c,long(x/2),long(y/2)) : c

end

endcase
print,mode
return,c
end

pro test_dct
test=dist(16)
tvsc1,congrid(test,128,128),0
tvsc1, congrid(cr_dct(cr_dct(test,-1,/shiftit),1,/shiftit),128,128) ,1
end

```

Thank you and best regards

CR
