Subject: Re: Determing true resolution of an image?
Posted by David Fanning on Tue, 05 Mar 2002 19:44:09 GMT
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William Connolley (wmc@bas.ac.uk) writes:

> I'd like a procedure to take a digital image (a photo) and, by in some
> way reducing the image and comparing the "inforamtion" left, to determine
> the "true" resolution. What I have in mind is to scan in an analogue photo
> at very high res, and to try to determine what res needs to be retained.

What does "information" mean in this context?

Cheers,

David

--
David W. Fanning, Ph.D.
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Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Determing true resolution of an image?
Posted by Martin Downing on Tue, 05 Mar 2002 23:06:35 GMT
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"David Fanning" <david@dfanning.com> wrote in message
news:MPG.16eecdf16f798ad3989831@news.frii.com...
> William Connolley (wmc@bas.ac.uk) writes:
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>> at very high res, and to try to determine what res needs to be retained.
>
> What does "information" mean in this context?
>

I was looking into something like this a while back, where I would interpret
"information" as representation of the theoretical object input image
signal. If you measure the FT of the output, you can look for the maximum
frequency at which there is still significant power above the noise level.
The resolution of the image could then be set to twice this frequency.

Alternatively, if you just want a "nice" looking image, you can look at
lossy methods of reduction such as JPEG compression as well as reducing the
resulution, and then use volunteers to decide what level is almost as good
as the original.

Martin

Subject: Re: Determing true resolution of an image?
Posted by wmconnolley on Thu, 07 Mar 2002 13:51:31 GMT
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Martin Downing <martin.downing@ntlworld.com> wrote:
> "David Fanning" <david@dfanning.com> wrote in message
> news:MPG.16eecdf16f798ad3989831@news.frii.com...
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>> What does "information" mean in this context?

Well, I'm trying to compare analogue and digital images in a quantitative way.
So "information" is the true resolution. Take an analogue image: I can scan
it in at increasingly high res, but after some level the amount of info doesn't
increase but the noise does.

> I was looking into something like this a while back, where I would interpret
> "information" as representation of the theoretical object input image
> signal. If you measure the FT of the output, you can look for the maximum
> frequency at which there is still significant power above the noise level.
> The resolution of the image could then be set to twice this frequency.

Fourier transform is an interesting idea. I'll look at that, thanks.

-W.

--
William M Connolley | wmc@bas.ac.uk | http://www.nerc-bas.ac.uk/icd/wmc/
Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself
I'm a .signature virus! copy me into your .signature file & help me spread!

Subject: Re: Determing true resolution of an image?
Posted by chrisduckworth on Fri, 08 Mar 2002 06:28:09 GMT
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On 7 Mar 2002 13:51:31 GMT, wmc@bas.ac.uk wrote:

> Martin Downing <martin.downing@ntlworld.com> wrote:
>> "David Fanning" <david@dfanning.com> wrote in message
>> news:MPG.16eecdf16f798ad3989831@news.frii.com...
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> Well, I'm trying to compare analogue and digital images in a quantitative way.
> So "information" is the true resolution. Take an analogue image: I can scan
> it in at increasingly high res, but after some level the amount of info doesn't
> increase but the noise does.

It sounds like you want to do an MTF (modulation transfer function)
measurment. This is a some what common measurment. If I rember my DSP,
you need to scan the analog image at a rate of 2.15 times the analog
nyquest.
But, umm, this is probably the wrong news group for this stuff.

>
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>
> --
> William M Connolley | wmc@bas.ac.uk | http://www.nerc-bas.ac.uk/icd/wmc/
> Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself
> I'm a .signature virus! copy me into your .signature file & help me spread!
>