

Re: Mexican hat

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- *From:* illywhacker <illywacker@xxxxxxxx>
 - *Date:* Wed, 8 Oct 2008 10:59:19 -0700 (PDT)
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On Sep 26, 1:23 am, ImageAnalyst <imageanal...@xxxxxxxxxxxxxxxx> wrote:

On Sep 25, 10:44 am, illywhacker <illywac...@xxxxxxxx> wrote:

On Sep 25, 3:36 pm, Anicet Franken <Anicet.Fran...@xxxxxxxxxxxxxxxx> wrote:

Hello,

who knows the following kernel : mexican hat?

Normally this is the negative of the Lapacian of a Gaussian. As always, try wikipedia yourself before you bother people here:

http://en.wikipedia.org/wiki/Mexican_hat_wavelet

illywhacker;

illywhacker:

I didn't know that – learn something new every day. I don't use wavelets but have a background in optics and imaging and there the Mexican Hat "normally" refers to the Bessel function, like Jomar said. Just as often, or maybe more or less, it's also called the "Sombrero function." You get this from the diffraction pattern of a circular aperture – analogous to the sinc function which you get from diffraction of a rectangular aperture. You can convolve your image with these to simulate blurring by imaging through apertures shaped

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like that.

Yes, thanks: I see that. I guess the truth is that it could be used to refer to any function of radius with a positive centre and negative surround, tending to zero at infinity. The Bessel function has multiple zeros, which is unlike any sombrero I have ever seen, but then sombreros do not extend to infinity either. Calling it a kernel or not is irrelevant though. The Laplacian of a Gaussian is also a kernel.

illywhacker;

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