Gabor wavelet

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**Que es y caracteristicas: Gabor wavelets** are [wavelets](https://en.wikipedia.org/wiki/Wavelet) invented by [Dennis Gabor](https://en.wikipedia.org/wiki/Dennis_Gabor) using complex functions constructed to serve as a basis for [Fourier transforms](https://en.wikipedia.org/wiki/Fourier_transform) in [information theory](https://en.wikipedia.org/wiki/Information_theory) applications. They are very similar to [Morlet wavelets](https://en.wikipedia.org/wiki/Morlet_wavelet" \o "Morlet wavelet). They are also closely related to Gabor filters (see [Gabor filter#Wavelet space](https://en.wikipedia.org/wiki/Gabor_filter#Wavelet_space)). The important property of the [wavelet](https://en.wikipedia.org/wiki/Wavelet) is that it minimizes the product of its standard deviations in the time and frequency domain. Put another way, the [uncertainty](https://en.wikipedia.org/wiki/Heisenberg%27s_uncertainty_principle) in information carried by this wavelet is minimized. However they have the downside of being non-orthogonal, so efficient decomposition into the basis is difficult. Since their inception, various applications have appeared, from image processing to analyzing neurons in the human visual system. [[1]](https://en.wikipedia.org/wiki/Gabor_wavelet#cite_note-imageRep-1) [[2]](https://en.wikipedia.org/wiki/Gabor_wavelet#cite_note-CVRef-2)

Para que: A Gabor atom (or function) was proposed by Hungarian-born electrical engineer Dennis Gabor in 1946 [2]. Nowadays, Gabor functions are frequently used for feature extraction, especially in texture-based image analysis (e.g., classification, segmentation or edge detection) and more practically in face recognition. Many of image processing tasks can be seen in terms of a wavelet transform. Informally speaking, the image can be seen under the lens with a magnification given by the scale of a wavelet. In doing so, we can only see just the information that is determined by the shape of the used wavelet. The Gabor atoms can also be seen in the words of a wavelet transform [8]. Specifically, Gabor wavelets are created from one particular atom by dilation (and rotation in two-dimensional case). These Gabor wavelets provide a complete image representation [6].

Neuronal networks

En aspecto interesante de estos sistemas es que son impredecibles en su éxito con el auto-aprendizaje. Después del entrenamiento, algunos se convierten en grandes solucionadores de problemas y otros no funcionan tan bien. Con el fin de capacitarlos, se necesitan varios miles de ciclos de iteración. https://es.wikipedia.org/wiki/Red\_neuronal\_artificial