

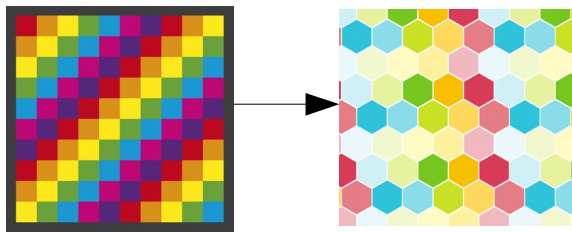
Hexagonal Image Processing: A new perspective

Humans use their eyes and their brains to see and visually sense the world around them. Computer vision is the science that aims to give a similar, if not better, capability to a machine or computer. Computer vision is concerned with the automatic extraction, analysis and Understanding of useful information from a single image or a sequence of images. It involves the development of a theoretical and algorithmic basis to achieve automatic visual understanding.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that Image. The widely used sampling lattice for image Processig is the Square lattice.

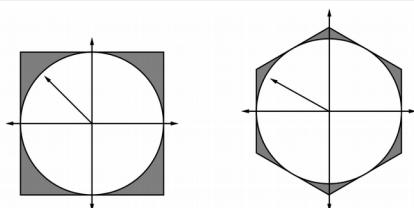


What if we change lattice?



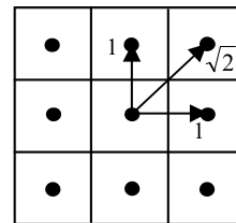
Square to Hexagonal

Advantages of hexagons

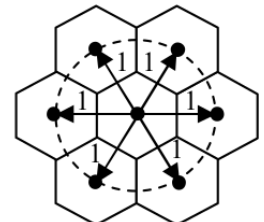


Isoperimetry

Equidistance

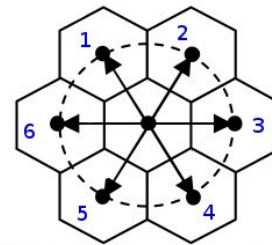


(a) Square lattice



(b) Hexagonal lattice

Uniform Connectivity



Smaller Quantization Error

Quantization is compulsory for the image processing operations because of the limited capable Sensors to represent the real world scenes. Quantization error is an important measure to analyze the Merits of the configurations of the different types of Sensors. Here the hexagonal sampling gives lesser Quantization error when compared to square.

Greater Angular Resolution

For representing curved images, hexagonal Grid is efficient. Adjacent pixels in hexagonal grid are Separated by sixty degrees instead of ninety degrees In square. So, curved images can be represented in a Better way. Main reason behind this is the consistent Connectivity. Human eyes have a special visual preference of seeing the lines which are at oblique angle. So this is another reason for representing lines also In a better way in hexagonal grid

Contact Information

Email: francojigo.pacana@rocketmail.com
Mobile: 09756102690
Tel#: 224-5123
Mailing: Upper Ditucalan Iligan City