

EYESFIRST GAMES

Eye Tracking API .



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GAMES :

Tile Slide

Match Two

Double Up and

Maze



What is Eyes First Games ?

Eyes first games are popular games reinvented for an “Eyes First” experience.

Microsoft Research has published four “Eyes First” games, designed to help make eye tracking more of a mainstream technology for Windows 10 users.

They are powered by Windows 10 eye tracking APIs and can be used with or without Windows 10 Eye Control , a key accessibility feature for people with speech and mobility disabilities.

Tools :



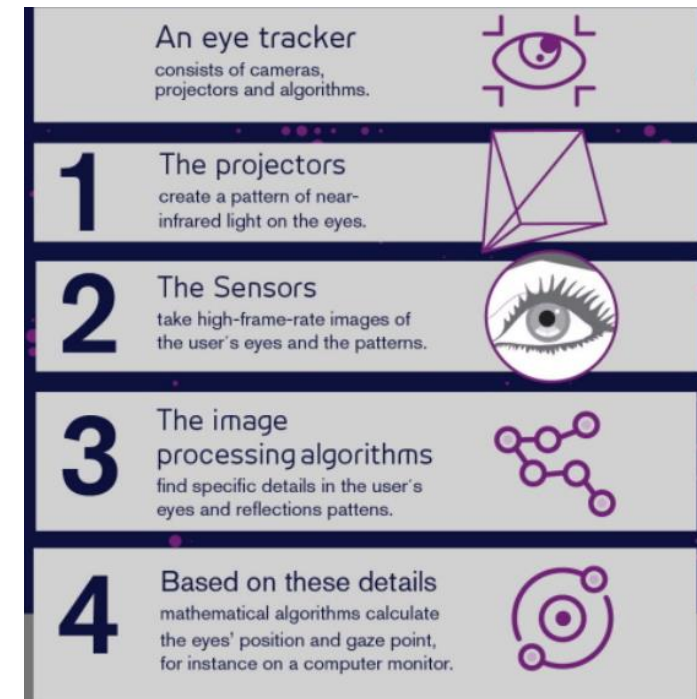
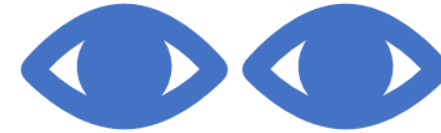
Eye-tracking hardware from
Tobii-Tobii Eye Control 4C.



PC with windows 10 2018
Update or newer.

What is Eye tracking ?

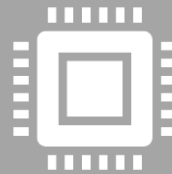
- Eye tracking is a technology that is used to control devices with just eyes.
- Components of Eye tracker :
 - Advanced micro projectors –creates a pattern of near-infrared light on the eye.
 - The sensors – takes high-frame-rate images of the user's eyes and the patterns
 - The image-processing algorithms – find specific details in the user's eyes and reflections patterns.
 - User-oriented applications – intelligent application layer added to enable the various ways technology can be used .



What is Digital image Processing ?



Processing digital image by means of digital Computer.



In other words ,it uses computer Algorithms to get enhanced image to extract some useful information.

Digital image processing

Digital image processing allows the use of much more complex algorithms, and hence, can offer both more sophisticated performance at simple tasks, and the implementation of methods which would be impossible by analog means.

In particular, digital image processing is the only practical technology for

- [Classification](#)
- [Feature extraction](#)
- [Multi-scale signal analysis](#)
- [Pattern recognition](#)
- [Projection](#)

Main Steps in Image Processing :

- Importing the image via image acquisition tools
- Analyzing and manipulating the image
- Output in which result can be altered image or a report which is based on analyzing that image

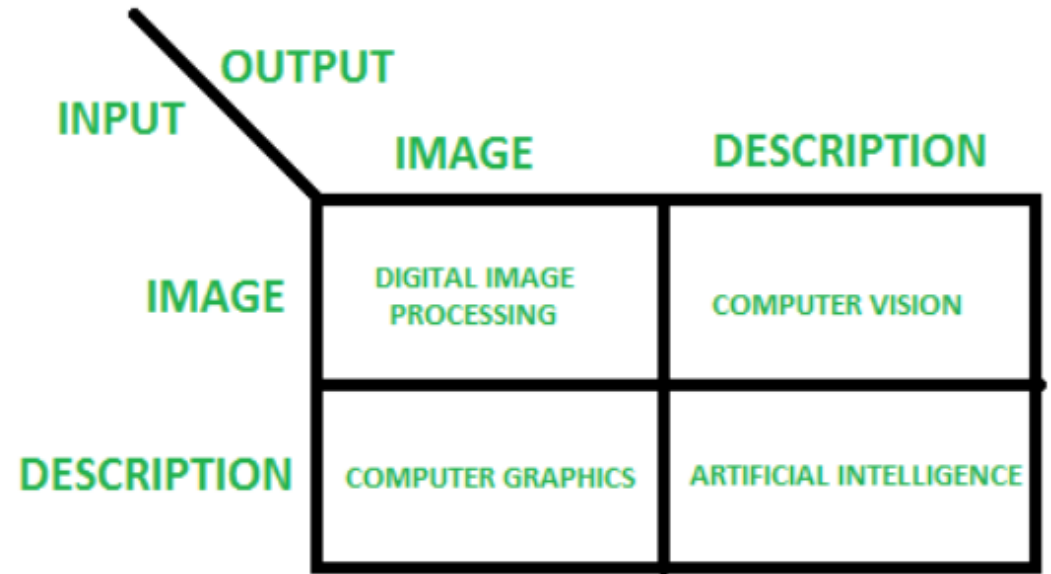
Image and types of image :

- It is defined as two-dimensional function, $F(x, y)$ where x and y are spatial coordinates, and amplitude of F at any (x, y) is called the “Intensity” of that image at that point.
- When x, y , and amplitude of F are finite, we call it a “Digital image”.
- Types of images :
 - Binary Image – 0 or 1 (Monochrome)
 - Black and White Image
 - 8-bit Color Format (Grayscale Image)- 256 shades, 0- Black ,255- White and 127-gray
 - 16-bit Color Format (High Color Format)– 65,536 colors , RGB(Red, Green, Blue)

Phases of Image Processing :

- Acquisition - image which is in digital form(Scaling , Conversion)
- Image Enhancement – extracting hidden details
- Image Restoration - Appealing of an image but it is objective
- Color Image Processing - Pseudo color and full color Image processing color models.
- Wavelets and Multi-Resolution Processing – representing images in various degrees
- Image Compression - image size or resolution
- Morphological Processing - extracting image components for representation and shape .
- Segmentation Procedure - Partitioning an image into its constituent parts or objects
- Representation and Description - transforming raw data into processed data.
- Object Detection and Recognition - Assigns a label to an object based on its descriptor.

Overlapping fields with Image Processing



References :

- <https://www.microsoft.com/en-us/research/product/eyes-first/>
- <https://www.tobii.com/tech/technology/what-is-eye-tracking/>
- https://en.wikipedia.org/wiki/Digital_image_processing
- https://en.wikipedia.org/wiki/Pattern_recognition
- <https://www.geeksforgeeks.org/digital-image-processing-basics/>

The image features a dark gray background with four overlapping circles in two shades of blue. A horizontal white band runs across the middle of the image, containing the word "End" in a dark blue, sans-serif font.

End