# MDM2 Research

* Convert image to pixel values

## Motivation

Identifying bone breaks from X-rays (hairline fracture)

## Possible models

### Finite differences:

<https://www.researchgate.net/publication/357351763_Finite_difference_methods_in_image_processing> - finite differences method source 1

Kernels

* Kernels can be used to detect edges in images and the Laplacian filter is one example :
* A white paper with black text and numbers

  Description automatically generated

Formulas:

* Forward , backward and central differences for one variable (1st order):

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* Central differences for two variables x, y:

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Description automatically generated

* Magnitude of the gradient between adjacent positions:

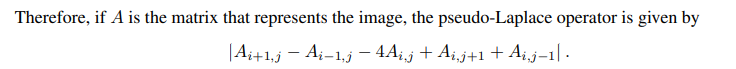
A math equations on a white background

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A math equations with black text

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* From this you can imply :



## Possible images to use

## General research

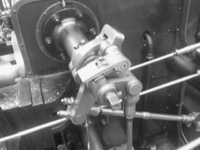
* In RGB color model, an image is represented with three grayscale images corresponding for each color component, i.e. a matrix for red intensity, a matrix for green intensity, and a matrix for blue intensity, these matrices are known as masks.(see below from <https://www.researchgate.net/publication/357351763_Finite_difference_methods_in_image_processing> (finite differences 1) )

A group of different colors

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Image edge detection:

<https://en.wikipedia.org/wiki/Canny_edge_detector#Process> (canny edge detection, basic algorithm)



<https://ieeexplore.ieee.org/document/8667063> (other people’s report about edge detection and it has a good example of introduction)

<https://www.researchgate.net/publication/357351763_Finite_difference_methods_in_image_processing> - finite differences method