Frame Processing Transformations

- The generate a pixel value based on an operation involving two or more different images.

- Each output pixel is usually located at the same position in the input image.
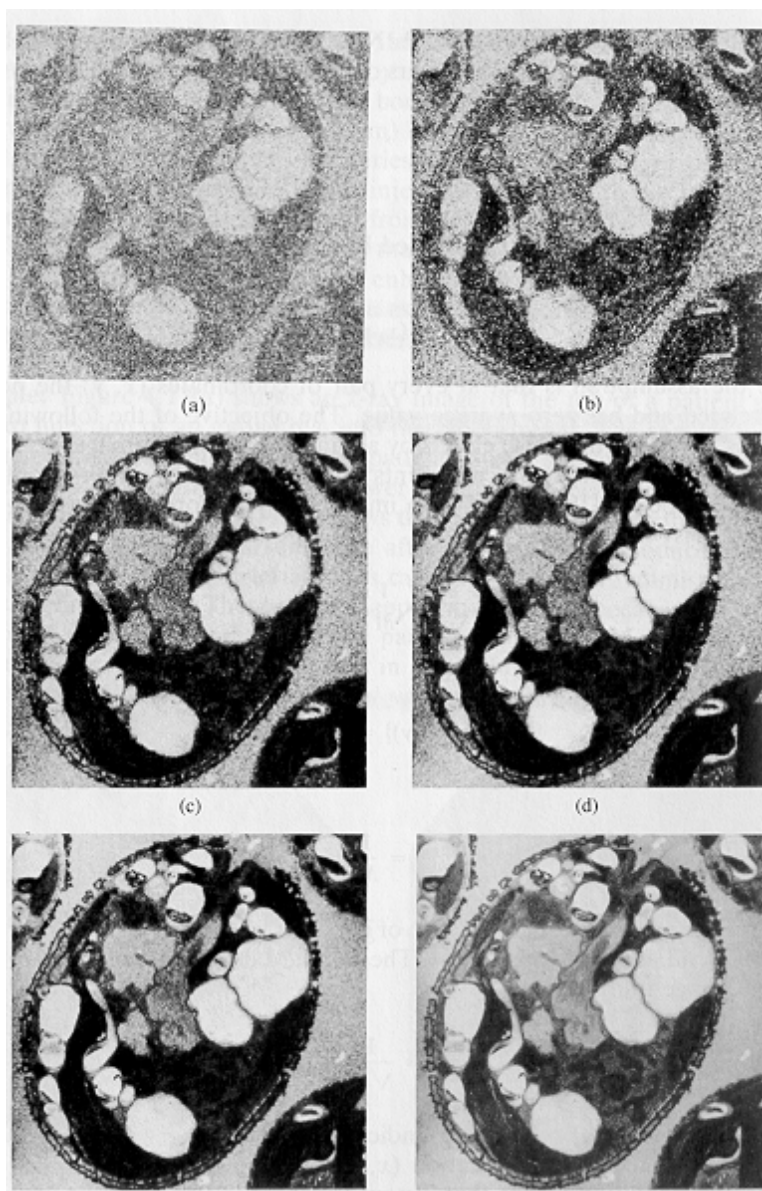
• **Addition**

- Useful for combining information in two images.

$$O(r, c) = \alpha I_1(r, c) + (1 - \alpha) I_2(r, c)$$

• Averaging

- Image quality can be improved by averaging a number of images together.

• **Subtraction**

- Useful for "change detection"

$$O(r, c) = |I_1(r, c) - I_2(r, c)|$$

• **Multiplication/Division**

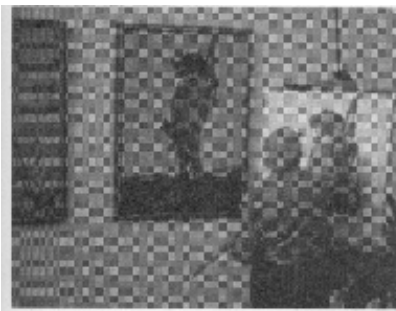- They are used to adjust the brightness of an image.
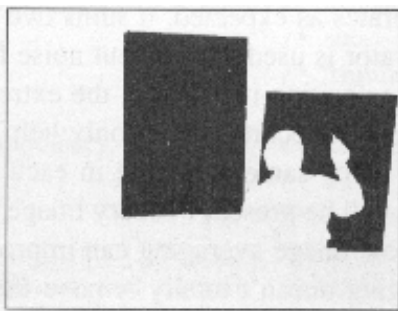
(example of image multiplication by 2)

• AND/OR

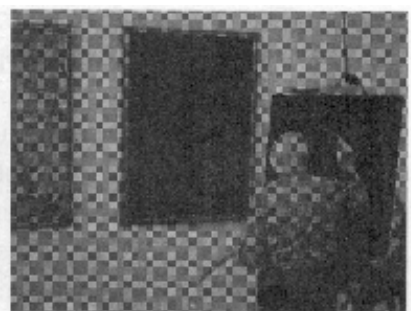- The AND operator is usually used to mask out part of an image.

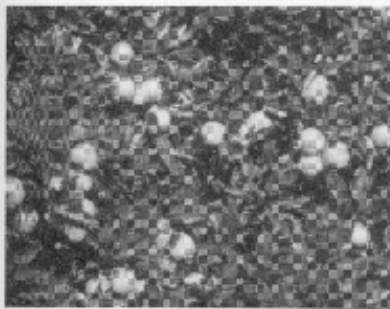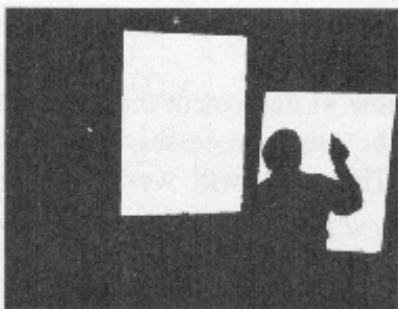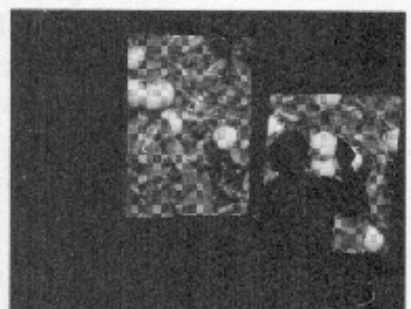- Parts of another image can be added with a logical OR operator.

(a) (b) (c)
(d) (e) (f)