

# Lecture 13: Drawing Lines & Detecting Edges

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## 1 Pixels

The pixel space is a rectangle on the  $x, y$  plane, bounded by  $0 \leq x \leq x_{max}$  and  $0 \leq y \leq y_{max}$ . Each axis is divided into an integer number of pixels,  $N_x$  and  $N_y$ . The pixels therefore have width and height:

$$W = \frac{x_{max}}{N_x}$$
$$H = \frac{y_{max}}{N_y}$$

Pixels are referred to using integer coordinates, that either refer to the location of their left hand corners or their centres. Knowing the  $W$  and  $H$  values allows the pixel to be defined. Assuming that  $W$  and  $H$  are equal, the pixels are square.