Edge Detection and Color Edge Detection

$$\nabla f(x,y) = \left(\frac{\partial F}{\partial x}, \frac{\partial F}{\partial y} \right)$$

$$|\nabla f| = \sqrt{\left(\frac{\partial F}{\partial x} \right)^2 + \left(\frac{\partial F}{\partial y} \right)^2}$$

$$(R, G, B)$$