



The image displays a contour plot of a function  $f(x)$  with a color gradient from blue (low values) to red (high values). The contours are curved, indicating a non-linear function. A series of black dots connected by lines illustrates the path of an optimization algorithm. The path starts at a point in the lower-left and moves towards the upper-right, but exhibits significant oscillations due to a large step size. The equation  $x(t+1) = x(t) - 0.31 \nabla f(x(t))$  is shown in a white box, indicating the step size used.

$$\mathbf{x}(t+1) = \mathbf{x}(t) - 0.31 \nabla f(\mathbf{x}(t))$$