The videos present the following PDE filters:

Heat equation: $\frac{\partial I}{\partial t} = \Delta I$

Adaptive smoothing: $\frac{\partial I}{\partial t} = c(||\nabla I||)\Delta I$

Perona-Malik: $\frac{\partial I}{\partial t} = \text{div}(c(||\nabla I||)\nabla I)$

Prefiltered Perona-Malik: $\frac{\partial I}{\partial t} = \text{div}(c(||\nabla (G * I)||)\nabla I)$

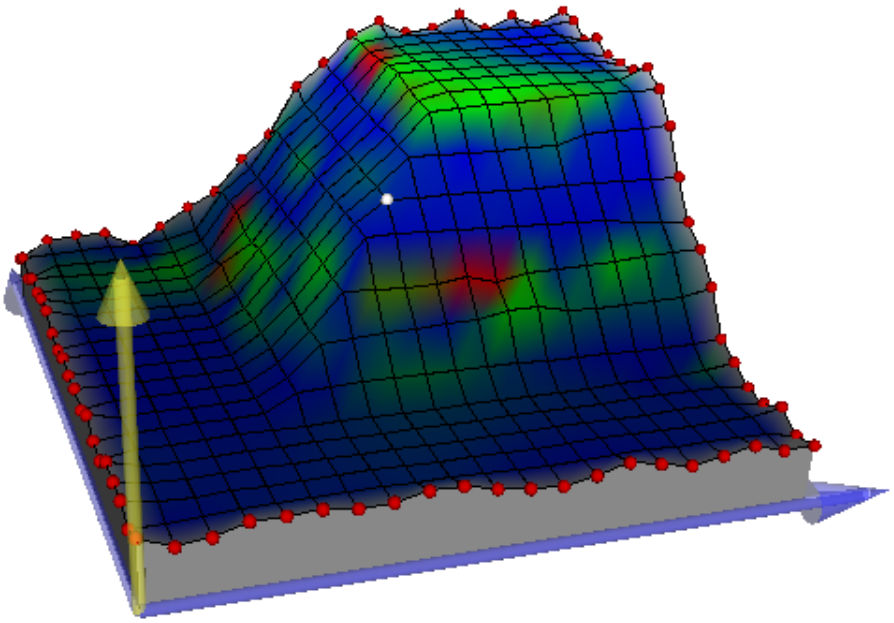
where the function c smoothly decreases from $c(0) = 1$ to $c(+\infty) = 0$ and G is a Gaussian kernel.

filter name

number of iterations

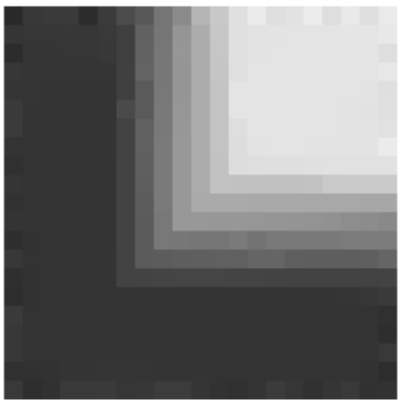
Perona Malik: 54

3D plot
- red: active areas
- blue: inactive areas

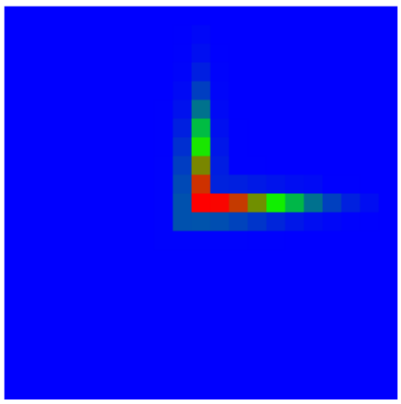


influence of
the central pixel
on the other pixels
(red: high, blue: low)

Intensity



Diffusion



gray-level image