## Static, Quasi-Static and Dynamic Analysis of a scaled Perona-Malik Functional

Consider sequence of (scaled Perona-Malik) functionals defined on a discrete lattice  $\varepsilon \mathbb{Z} \cap [0, 1]$ .

$$F_{\varepsilon}(u) := \sum_{i=1}^{N_{\varepsilon}} \frac{1}{|\log \varepsilon|} \log \left( 1 + |\log \varepsilon| \frac{|u_i - u_{i-1}|^2}{\varepsilon} \right).$$
(1)

 A well known result guarantees that (1) Γ-converge to the Mumford-Shah functional

$$M_s(u) = \int_0^1 |u'|^2 + \#(S(u))$$
(2)

Valerio Vallocchia joint work with Andrea Braides PIRE-CNA 2016 Summer School - Carnegie Mellon University

- We want to understand **analogies** and **differences** between Perona-Malik and Mumford-Shah functional in:
  - Structure of local and global minima
  - Quasi-Static motion
- Dynamic evolution (minimizing movement)