16-124-836
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1.1 Blur Kernel

Last digit of matriculation number: $6 \Rightarrow 6 \; mod \; 4 = 2$

$\Rightarrow \; k_2 = \begin{pmatrix} \frac{1}{2} & 0 \\ 0 & \frac{1}{2} \end{pmatrix}$

1.2 Discretization of E

Finite difference approximation of the objective function E: Choose forward differences for the discretization. In particular, use eq. (6) for the Gaussian prior implementation and derive the corresponding discretization for the anisotropic prior. Write the main steps of your calculations in the report.

1.3 Gradient Calculations

(a) *Compute the gradient* $\Delta_u E$ *at pixels inside the image, i.e.* $1 \leq i \leq m-2$ *and* $1 \leq j \leq n-2$

(b) *Compute the gradient* $\Delta_u E$ *at the four corners, i.e.* $(i, j) \in \{(0,0); (0, n-1); (m-1, 0); (m-1, n-1))\}$

(c) *Compute the gradient* $\Delta_u E$ *at pixels on the upper edge, i.e.* $i = 0$

(d) *Compute the gradient* $\Delta_u E$ *at pixels on the left edge, i.e.* $j = 0$

(e) *Compute the gradient* $\Delta_u E$ *at pixels on the right edge, i.e.* $j = n-1$

(f) *Compute the gradient* $\Delta_u E$ *at pixels on the lower edge, i.e.* $i = m-1$