
Algorithm 1 The proposed FEMF

Input: noise image I and parameter W

Output: Improved image I'

Initialize W to be 3

Evaluate the noise density E

for $f_2 \leftarrow 0$ to $N-1$ **do**

for $f_1 \leftarrow 0$ to $M-1$ **do**

if $E \leq 50\%$ **then**

$\Omega^{sh} = \{j = (j_1, j_2) \mid j_2 = i_2 \pm (W-1)/2\}$

$\Omega^{sv} = \{j = (j_1, j_2) \mid j_1 = i_1 \pm (W-1)/2\}$

 Set S as a set composed of Ω^{sh} and Ω^{sv}

else

$\Omega^{sh} = \{j = (j_1, j_2) \mid i_1 - (W-1)/2 \leq j_1 \leq i_1 + (W-1)/2,$

$j_2 = i_2 \pm (W-1)/2\}$

$\Omega^{sv} = \{j = (j_1, j_2) \mid j_1 = i_1 \pm (W-1)/2, i_2 - (W-1)/2 \leq j_2 \leq i_2 + (W-1)/2\}$

 Set S as a set composed of Ω^{sh} and Ω^{sv}

end if

if S does not include noise-free pixels **then**

$W = W + 2$ and go to line 7

else

 Set H as a set of noise-free pixels in S

$f'_i = \text{median}(H)$

end if

end for

end for
