**Context**
- Create a Diminished Reality process
- Needs to make planar rectifications onto the unknown zone which is completed by inpainting method [5, 6]

**Problem Statement**
- Non-uniform quality of data and possible interpolation artefacts
- Not handled in the state-of-the-art inpainting methods
- Creates a noticeable blur effect in the inpainted region

**Radiometric Confidence Criterion**
- A criterion that associates to each image pixel a score characterizing the quality of its projection
- Inspired from Bouguer’s law: \( dF = I.d\Omega = I \cdot \cos \theta dS \)

Defined as \( trust(P) = (\frac{dF(Q)}{dF(P)})^2 \left( \frac{\cos \theta}{\cos \theta_{\text{reg}}} \right)^3 \)

Confidence map of an image: \( C: U \times V \rightarrow \mathbb{R}, p \mapsto C(p) = trust(P) \)
- validation function \( \text{validation}(p, q, C, \alpha) = C(q) \leq \alpha C(p) \)

**Application 1: PatchMatch**
- PatchMatch [1] finds matches between patches of an image by defining a correspondence map of nearest neighbour field (NNF)
- Update: in the propagation step, use validation to verify that the center pixel \( q \) of the candidate patch has a larger confidence than the mask pixel

**Application 2: Statistic + Offsets Inpainting**
- Statistic analysis followed by graphcut [4] more adapted for inpainting textures with a regular pattern [2, 3]
- Aim: calculating for each patch of the known zone \( I_{\text{MC}} \) its associated offset by minimizing \( E = E_{\text{data}}(p, t) + E_{\text{reg}}(p, q, t_p, t_q) \)
- Update: \( E_{\text{data}}(p, t) \) is set to 0 if \( p + t \) does not belong to the mask AND if validation\( (p, q, C, \alpha) = 1 \), otherwise it is set to \( +\infty \)

**Results**
- Input images
- Output images (left: without criterion, right: with criterion)

**Future Work**
- Extend to multi-view setting
- Set a trust based variable Gaussian blur for the output images

**Références**