# Non-Local Means Inpainting of MS Lesions in Longitudinal Image Processing

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# Criminisi’s Inpainting Algorithm

- “Onion-peel strategy”: Inpainting is done from outside to inside.
- Requires a target patch to be given.

# Step 1

- Given a target region, a priority (P) is assigned to each pixel.

- Initially, all points in the target region have a confidence (C) of 0.

$$P(p) = C(p) * D(p)$$

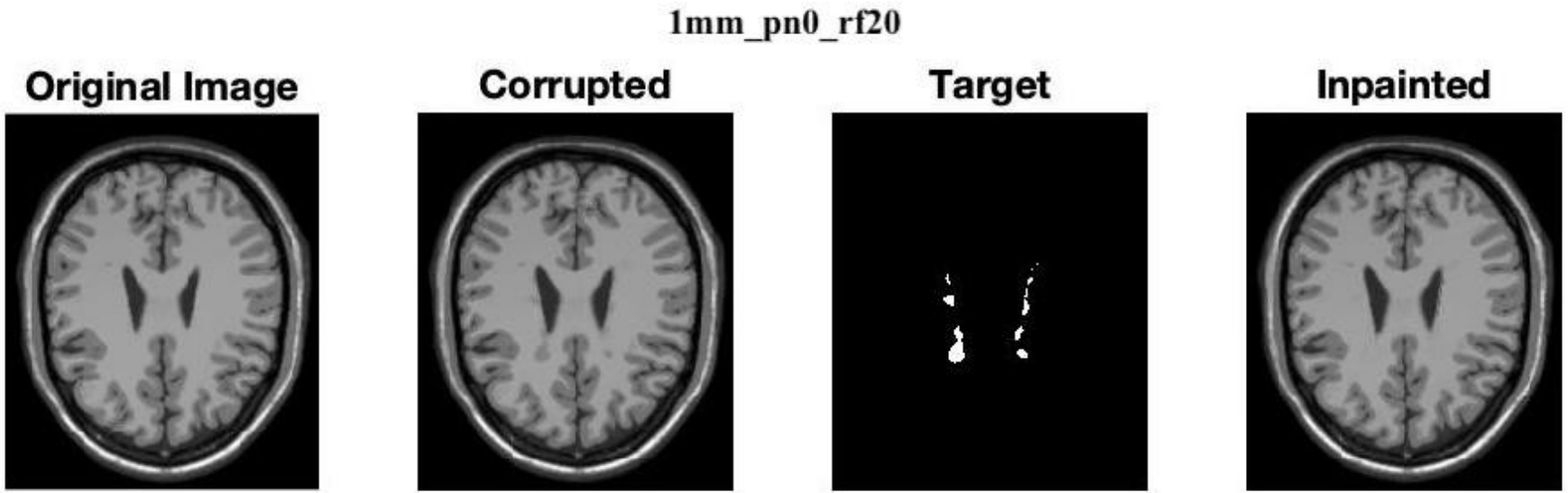
$$C(p) = \frac{\sum_{q \in \varphi_p \cap \phi} C(q)}{|\varphi_p|}$$

$$D(p) = \frac{\left|\nabla I_P^{\perp} \cdot n_p\right|}{\alpha}$$

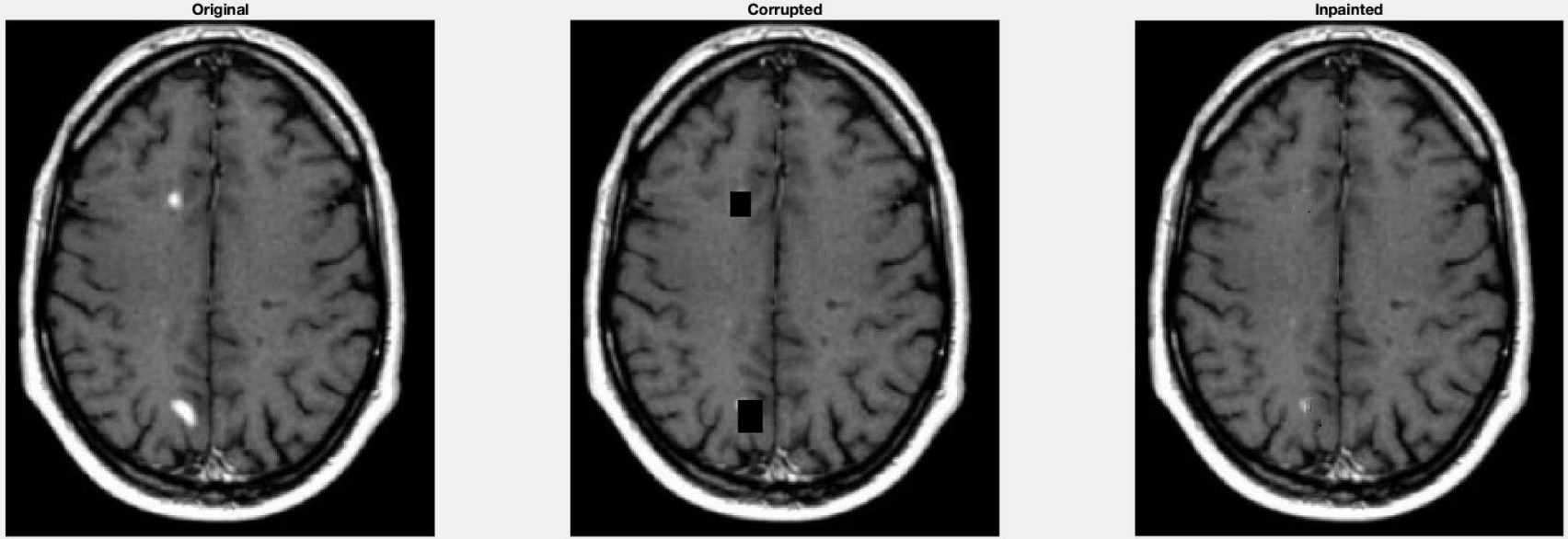
# Step 2

- Detect the boundary of the lesion region.
- Find a pixel on the boundary with the highest priority
- Search the neighbourhood for a pixel with the most similar surrounding (patch-distance).
- Assign the known pixel to the unknown pixel.

# Inpainting on MS lesions



# Inpainting on MS lesions



# Inpainting on Non-Medical Images

Thank You