



Master in Computer Vision *Barcelona*

Module: Optimization and Inference Techniques in CV
Project: Poisson Editing
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Goal

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To inpaint an area using seamless cloning.



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Deliverable: Mandatory

Mandatory means if there any point that it is not done, then the weekly task will FAIL. Implement the **importing gradients** method from the Patrick's paper.

- ▶ Read the Patrick Perez's paper.
- ▶ Complete start.m file
- ▶ Modify the G???_Laplace_Equation_Axb.m file and create a G???_Poisson_Equation_Axb.m adding **ONLY 4 lines**. 3 of this 4 lines should be

```
if (isfield(param, 'driving'))  
else  
end
```
- ▶ Test with your own images.

The objective is that if param.driving exists, do the Poisson editing, and if it doesn't, do the Inpainting by Laplace's equation.

Deliverable of mandatory. Wed. Nov. 2nd. 9:00h

WARNING: Be careful with the sign on the discretization of the Laplacian operator!!!!!!

Deliverable: Optional

1. Test with your own real images. Each successfully edited image will sum up 0.1 points.
2. +1 Points: Implement Seamless cloning with mixing gradients.
3. Try different numerical schemes
 - 3.1 +5 points: Gradient Descent and compare it with cyclic schemes for evolution PDEs
 - 3.2 +5 points: Gauss-Seidel and ω -relaxation and compare them with cyclic schemes for stationary PDEs
 - 3.3 +10 points: Multigrid.
4. Feel free to experiment.