# Research Trajectory

I started to work on PDEs and variational approaches to solve a variety of computer vision tasks. Recently, I focused in particular on the retina (with contributions on modeling and MEA analysis) and on motion perception (with contributions on modeling V1 and MT cortical areas for applications on multistability and optical flow estimation). Now my goal is to develop new bio-inspired approaches.



**Calculus of variations**

**Solving Computer Vision tasks**

**Bio-inspired models**

**Modeling Visual System**

**Mathematical Neuroscience**

Partial differential equations (PDE) and variational approaches

Neural fields
Spiking neural networks
Dynamical systems

Image restoration

Bilateral filtering

Optical flow

Motion perception

V1-MT models

Sequence segmentation

Tensor voting

Super-resolution

Retina recording analysis

Micro-movements

Inpainting

Tracking

Action recognition

Retina modeling