



## A Deep Learning approach for image reconstruction from binary pixels

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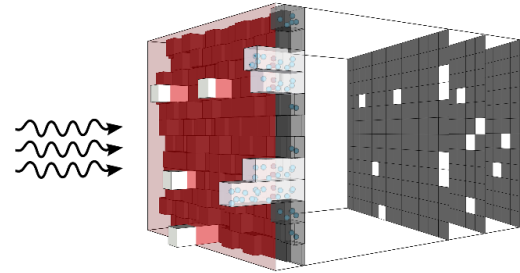
**Supervisor:** Or Litany

### Project description:

Driven mostly by the booming mobile market, digital photography has advanced staggeringly. However, due to constraints in form factor, image quality in poorly lighted environments is often unsatisfactory.

Recently, Eric Fossum (inventor of CMOS image sensor) proposed a novel concept of an image sensor with dense sub-diffraction limit one-bit pixels (jots). Newly developed computational photography techniques show great potential for this sort of camera to produce high quality HDR images.

In this project, we will make an attempt to improve upon state-of-the-art reconstruction methods by using advanced deep learning tools. The student will implement the special noise model of these sensors, which will be used to train deep convolutional neural network architectures. Finally, real data collected from these camera will be used for testing the quality of reconstruction.



Required background : Image Processing, Machine Learning  
Environment : Python (Tensorflow)

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