Neuromorphic Imaging with Event-based Vision Sensor using Deep Learning

Participating faculty:
- Dr. Chandra Sekhar Seelamantula (Department of Electrical Engineering); Email: css@iisc.ac.in

- Dr. Chetan Singh Thakur (Department of Electronic Systems Engineering); Email: csthakur@iisc.ac.in

Proposal

Neuromorphic cameras or event-driven cameras (also known as the silicon retina) generate output in the form of asynchronous events corresponding to illumination changes at every pixel. These cameras have several advantages over conventional frame-based cameras: a high dynamic range, low-latency, sparse measurements, low data rates, high temporal resolution, etc. The objective of this research is to develop a system for neuromorphic imaging applications using deep learning techniques. The developed system will exploit the inherent sparsity and the asynchronous nature of the event-based sensor to make it deployable in resource constrained environment with limited memory and compute power.

Over the course of the PhD, the student would get trained in various aspects related to Image Processing, Machine Learning/Deep Learning, Neuromorphic Computing, etc.