



# eyeBOS

Plug-in of high precision Background Oriented Schlieren analysis in a flash

#### Introduction

eyeBOS is a new powerful tool for Background Oriented Schlieren applications which uses an optical flow algorithm embedded in a GPU card. Within eyeMOTION, the eyeBOS plugin allows to see the displacement of a random dot pattern to reveal the refractive index gradients in real time or instant post-processing !

BOS is an optical density visualization technique, belonging to the same family as schlieren photography, shadowgraphy or interferometry. Schlieren imaging is based on the deflection of light rays passing through refractive index gradients in a transparent medium. In contrast to this, eyeBOS uses optical flow correlation technic on a background random dot pattern to quantitatively characterize compressible and thermal flows with good spatial and temporal resolution.

These refractive index gradients can be introduced by density variations in a fluid, or in mixing processes of different optical materials.

The synthetic random dot pattern backlighted in the flow background is imaged with a highresolution camera during the test. By comparing the images during the experience and one taken before the flow starts as a reference, the local displacement of the pattern can be used to provide information on the variations in refractive index caused by the flow.







### Features

Already tested and approved by reference research centers renowned for their works, eyeBOS provides ultra-fast and reliable results with the following characteristics

- Optical flow algorithm advantages compared to cross correlation technics.
- Real time processing with live view results
- 1 displacement value per pixel
- Intuitive user interface
- Low data storage requirements
- Low energy consumption









IS"





## **Coa** Press

### Applications

This technique is widely used for:

- Combustion analysis
- Gas flows
- Thermal analysis
- Gas leaking
- Shock waves studies,
- etc.



