

# Quasar: a new programming framework for image/video processing on heterogeneous hardware.

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## Abstract

In this Show&Tell session, we present Quasar, a new framework for heterogeneous programming on (multi-)CPU/GPU systems. GPUs are increasingly used because of the large performance gains they offer for calculations with large amounts of data (e.g., in image and video processing). However, GPU programming is challenging as it requires significant programming expertise and because the corresponding tools are not well suited for rapid prototyping. Quasar is aimed at alleviating these challenges, while still delivering significant acceleration. This is achieved by employing a high-level language, with a similar abstraction level as Matlab or Python.

We will demonstrate the Quasar language and IDE by showing several well-known (computationally intensive) image processing algorithms, such as pyramidal optical flow, voxel carving, volumetric ray tracing, geometric active contours, superpixel segmentation, image restoration... We highlight debugging, visualization and profiling capabilities while running the algorithms in real-time.

The audience is encouraged to change algorithmic parameters and see their algorithmic influence in real-time. For more information, see <http://quasar.ugent.be/blog>.