



ISTITUTO ITALIANO  
DI TECNOLOGIA

## TITLE

A method of identifying light sources, corresponding system and computer program product

## INVENTORS

Irtiza Hasan, Francesco Setti, Theodore Tsesmelis, Fabio Galasso, Alessio Del Bue, Marco Cristani, Michael Eschey, Herbert Kaestle

## DESCRIPTION

This invention disclose a system that analyses the light pattern in indoor environments and provide information about which lights are activated using only images obtained from a camera.

The light sources can be both natural (e.g. sunlight from a window) and artificial so providing a solution that can self-adapt to different environments. The system first records a series of images with prominent light variations and then decomposes such sequence into a set of basis images, depicting each light source alone. These basis images are further used to identify which light source is active in each new image acquired by system.



## APPLICATIONS

Indoor environments, smart lighting systems, illumination estimation

## KEYWORDS

Lighting, computer vision, time lapse, RGB-D, optimization, intrinsic image decomposition, non-negative matrix factorization, sparsity, spatial information, dimensionality reduction, specular highlight component, diffuse component

## BIBLIOGRAPHIC DATA

A method of view frustum detection, corresponding system and computer program product

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Applicants OSRAM GmbH, Università degli Studi di Verona, Fondazione Istituto Italiano di Tecnologia

## CONTACTS

Technology Transfer Office Lorenzo Rossi Lorenzo.rossi@iit.it

+39 010 71781 489