

## Image Processing at the Kassel documenta

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Category: [Arts & Culture](#)

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### How Machine Vision Enters the Temple of Modern Art

The documenta (Kassel, Germany) is considered as the most important event in modern art throughout the world. Only handpicked artists receive the honor to exhibit at this place. One of them uses the machine vision software HALCON to bring his exciting installations into life.

With his artwork „Deep Play“, Harun Farocki, Czech artist living in Berlin, analyzes the soccer world championship final 2006 (Italy against France) arranged on twelve screens. According to common media, Farocki's installation is one of the most popular artworks of the 2007 documenta.

To implement his artwork, Farocki used German high technology: The automatic image analysis of video sequences of soccer players' trajectories – taken from different camera positions – was realized based on the imaging software HALCON by MVTec, Munich ([www.mvtec.com](http://www.mvtec.com)). Normally, this software package is used for machine vision applications in raw industrial environments, e.g., production lines and robotics. In short: HALCON is technology leading software for machine vision and normally teaches machines to see.

In the case of „Deep Play“, HALCON was creatively used for purposes other than intended. By HALCON, Farocki's project partner (the chair for image understanding at Technische Universität München) visualized the single soccer players' trajectories in a way that never was implemented before. And this exactly gives the installation the character of an artwork: „Deep Play“ shows a new way to bring a soccer game into the visitor's awareness. Many combined angles of views enable brand-new perceptions based on mathematical image analysis.

This project was implemented within the development of automatic methods for game analysis by Prof. Michael Beetz and Prof. Bernd Radig, Technische Universität München. Video streams and images of „Deep Play“ can be found on common video portals on the Internet.

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### About HALCON

HALCON is the comprehensive standard software library with the IDE for machine vision. HALCON provides an outstanding performance for blob analysis, morphology, pattern matching, measuring, 3D object recognition, and binocular stereo vision, to name just a few. HALCON offers more than 1300 operators and provides interfaces to hundreds of industrial

image acquisition devices. Furthermore, HALCON is platform-independent and compatible to Windows, Linux, and Solaris.  
More information: [www.halcon.com](http://www.halcon.com)

#### About MVTec

MVTec is a leading manufacturer of standard software for machine vision.

MVTec products are used in all demanding areas of imaging: Semi-conductor industry, web inspection, quality control and inspection applications in general, medicine, and surveillance. MVTec has more than 30 established distributors, located throughout North- and South-America, Asia, Australia, and Europe. In addition, MVTec, LLC works out of Boston, MA (USA), to better attend the North-American market since 2007. For more information refer to [www.mvtec.com](http://www.mvtec.com)

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