

# Offer for a 3-Months Internship for Bachelor or Master Students

## Topic:

### **Development of GPU based Real Time Image Processing Algorithms under OpenGL ES and Android Platform**

This thesis is offered for bachelor and master students (depending on complexity and number of implemented algorithms).

Supervisor: M. Sc. Anton Papst  
Electronic Imaging department in Erlangen

## Abstract:

The Electronic Imaging department at the Fraunhofer IIS is developing point-of-view cameras for broadcasting services like 3D-TV. Such productions require real-time scene analysis and image rectification. For image data processing we use a graphic processor with OpenGL ES2.0 capability. The porting of the state-of-the art image processing algorithms on the graphics hardware is a challenging task.

## Tasks:

Do an analysis of the existing techniques and approaches for image processing on the GPU under OpenGL ES 2.0. Do the conceptual design and implementation of promising algorithms, e.g. for feature point detection. Evaluate the implemented algorithms regarding speed and quality. The programming framework is Android operating system with Android SDK. Hardware basis is Omap4 platform from Texas Instruments with SGX540 graphics processor.

## Requirements:

Understanding of and experience in OpenGL programming (essential)  
Experience with Java programming language (desirable)  
Experience with OpenGL shader programming (desirable)  
Experience in working with Android SDK (desirable)

## Payment Conditions & Application:

Fraunhofer IIS will pay an appropriate allowance to cover living costs and will also provide for accommodation and medical insurance during your stay in Erlangen. Travel expenses will not be reimbursed.

If you are interest in the afore-mentioned topic please send your formal application including CV, motivation letter, latest grades report, and the date of your earliest possible start to:

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**About the Fraunhofer IIS department “Electronic Imaging”:**

The Electronic Imaging department designs customer-specific camera systems for industrial and medical imaging applications as well as for the film and broadcast markets. Our areas of expertise cover the entire signal chain, starting with the image sensor, to the design of custom-tailored image processing algorithms, the development of signal processing hardware and software, and finally, software for intelligent image analysis.

For further information please visit our website: [www.iis.fraunhofer.de](http://www.iis.fraunhofer.de)