

Master's Thesis

Dynamic ROI size adaptation to increase frame rates of high speed 3D laser line scanners (at SmartRay GmbH in Wolfratshausen)

About SmartRay

SmartRay is specialized in 3D Sensors for inspection, guidance and measurement that help manufacturing companies to improve product quality, guide automation and reduce production costs. By focusing on 3D, SmartRay has built a comprehensive portfolio of products designed to solve a rapidly increasing range of industrial applications.

Task description:

SmartRay's laser line scanners work on the principle of laser triangulation and use a CMOS camera chip in the receive path. To achieve high scanning rates of up to 10kHz, the regions of interest (ROIs) of the camera chip are configured to only capture the laser line. However, for applications in which the object that is being scanned is not known beforehand, the optimal size of the ROIs must be determined with an automated mechanism.

In this master's thesis, different concepts for automatic laser line tracking and the calculation of optimal ROIs should be developed. These concepts should then be evaluated and compared against each other. Afterwards, the most promising concept should be implemented as Hardware/Software Codesign in an FPGA and an ARM processor respectively.

Prerequisites

Your profile:

- Bachelor's degree in electrical engineering, computer science, information technology, or any comparable course of studies
- Hardware description languages Verilog or SystemVerilog
- Programming languages C and C++

- Experience with Intel/Altera FPGA Design Flow is an advantage
- Experience in image and video processing is an advantage
- Good English language skills

Contact

Do you meet these requirements and want to submit an application? We look forward to hearing from you! Please send us a comprehensive application, including earliest possible starting date via email to: bewerbung@smartray.de Contact: Stefanie Ostermeier

<https://www.smartray.com/company/careers/candidate-for-masters-thesis-in-fpga-engineering-f-m-d/>

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