Master/ Bachelor Thesis

Evaluation of Real-Time Embedded Vision Algorithms for Cell Segmentation

Motivation

Heterogeneous multiprocessor embedded system is a promising approach to solve the dilemma between stringent real-time constraints and high computation power of next-generation intelligent microscopes, which with their automated image analysis capabilities will enable a huge speedup in cell biology research.

Task

The goal of this thesis is to explore the optimized application strategies of FPGA/DSP co-processor systems for cell segmentation purposes, which covers the following aspects:

• Feasibility study of representative cell segmentation algorithms in embedded processors
• Performance test and benchmark comparison of FPGA and DSP for cell segmentation algorithms
• Development of optimized task partition strategies for an FPGA/DSP co-processor system

Supervisor
Prof. Dr.-Ing. Alois Knoll

Advisor
Yang Chen, M.Sc

Research Project
AMIS
http://www6.in.tum.de/Main/ResearchAmis

Area
Computer Vision, Embedded Systems

Required Skills
VHDL, Embedded C, Matlab

Contact
Yang Chen, M.Sc
Department of Informatics · Robotics and Embedded Systems
Boltzmannstraße 3 · D-85748 Garching b. München
Tel: +49.89.289.18144 · yang.chen@in.tum.de · http://www6.in.tum.de