



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, C Language, Matlab

### Contact

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