

HAIBO HAO

Software Development

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EDUCATION

Institute of Computer Technology, Chinese Academy of Sciences Sep. 2015 -- Jul. 2018

Master student in Computer Architecture

Xidian University Sep. 2011 -- Jul. 2015

Bachelor student in Computer Science & Technology

PROJECT EXPERIENCE

GEMM and Convolution Algorithm Optimization on AMD GPU Apr. 2017 -- Now

I read and analyzed the source code of rocBLAS and MIOpen on AMD GPU heterogeneous computing platforms. I tested the peak performance comparison between MIOpen and cuDNN, Caffe(native). I am optimizing the MIOpen library and adding fp16 implementations of GEMM & Conv to MIOpen.

- rocBLAS and MIOpen GitHub contributor.
- MIOpen matrix multiplication(GEMM) and convolution kernel optimization, hipCaffe code migration (in progress).

TGMM Cell Detection and Tracking Algorithm Parallel Optimization Dec. 2016 -- Mar. 2017

Detecting and tracking cells in the fluorescence microscopic images by TGMM (Tracking with Gaussian Mixture Model) algorithm.

- Parallel acceleration on the GPU with Median Filter (5x acceleration), KNN and Gaussian Mixture Model calculations.
- Optimize some serial code with C++11 std::thread (3.4x acceleration).

CATMAID-5d Image Tracing Tool Secondary Development Jun. 2016 -- Sep. 2016

CATMAID (Collaborative Annotation Toolkit for Massive Amounts of Image Data) is an efficient web collaboration annotation tool. I modified CATMAID source code(40k+ python, 230k+ js code) to meet to requirements of 5d image annotation.

- I fixed the bug when migrating CATMAID from the django lower version to high version.
- On the basis of HHMI Janelia Research Campus open source project CATMAID , I do the second development, implemente the function of multi-person annotation simultaneously.

🏢 INTERN EXPERIENCE

Machine daily log file compression at LogInsight Mar. 2016 -- May. 2016

- Implemented the algorithm described in papter *Fast and efficient log file compression*. Improving compression ratio by 17%~18% compared to gzip.

🏆 AWARDS

Second price in the "Huawei Cup" programming contest May. 2014

Xidian University second-class scholarships Sep. 2012

Second prize in Xidian University Mathematical modeling competition Jun. 2012

⚙️ SKILLS

- Skilled in C, C++, CUDA, Python. Familiar with data structures and algorithms and had good programming style.
- Understanding the NVIDIA GPU architecture.
- English : CET6.