ChaoLi

Software Engineer

Education

Master of Science in Computer Science, 2013-2015
Worcester Polytechnic Institute, US

Bachelor in Computer Science, 2008-2012
Tianjin University of Technology, China

Skills

Python
C++
JAVA
Scala

AWS
Linux
Spark
Map Reduce

CPLEX
CUDA
Gurobi
CVX

RDBMS
NoSql
etc.

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Projects

Network protocol simulation and application 02/14 - 05/14
Computer networks course project

- Implemented a server and a client of a chat app, based on Linux sockets;
- Simulated the *selective repeat* and *go back n* algorithms of TCP protocal;
- This program is multithread, which can handle multiple clients at the same time.

Study on the Object Tracking in Video Stream 09/10 - 10/11
College student innovation project

- Studied Meanshift algorithm and Particle Filter algorithm;
- Implemented both of the above two algorithms in C++ and OpenCV;
- Blended the two algorithms.

Research experience

Semidefinite Programming, Binary Codes and a Graph Coloring Problem 09/14 - 05/15
Master's thesis project Advised by Prof. Martin, William J

- Studied *Semidefinite Programming* (SDP), and CVX used to model and solve SDPs;
- Studied the binary code size bound formulation based on SDP;
- Wrote a C++ program used to generate the dual-SDP problems automatically.

Recovering All Statistically Significant OPSM Patterns 06/14 - 02/15
Advised by Prof. Trapp, Andrew

- Studied the Order-Preserved Submatrix (OPSM) problem;
- Used C++ and CPLEX Concert technology to formulate its complementary problem;
- Added constraints to recover all statistically significant OPSMs.

Study on the Combinatorics of Binary Serieal Parallel Graph 06/14 - 12/14
Advised by Prof. Hofri, Micha

- Used the *Symbolic method* in *Analytic Combinatorics* to model random structures;
- Used the *Transfer Theorem* in *Analytic Combinatorics* to obtain the analytical generating functions for the structure;
- Studied on the generating function for its properties, e.g.,size and order.

Internship 04/13 - 05/13
Tellyes Company, Research Engineer, Tianjin, China

- Learned the convolutional based ultrasound image simulation algorithm;
- Rewrote the algorithm from C++ into CUDA C giving a 10 times faster improvement.

Publications

On the combinatorics of binary serires-parallel graphs
Micha Hofri, Chao Li, Hosam Mahmoud
Accepted by Probability in the Engineering and Informational Science.
Recovering All Generalized Order-Preserving Submatrices: New Exact Formulations and Algorithms
Andrew Trapp; Chao Li; Patrick Flaherty
Accepted by Annals of Operations Research