CHENG YICHAO

http://chengyichao.info
onesuperclark@gmail.com
+86 130-3509-7896

GOAL

I intend to invent tools to help scientists, engineers and artists better **understand** and **create** complex systems.

WORK EXPERIENCE

2014–Present Support Staff, Student Cluster Challenge

SCC 14'

Work in the supercomputing team of the University of Science and Technology of China. We are going to take part in the **Student Cluster Challenge 2014**, located in Lebzig, Germany.

Sep–Dec 2013 Teaching Assistant, University of Science and Technology of China, Hefei, China

USTC

Tutored students in **Introduction to Computing Systems** course and designed the lab and discussion sessions in an innovative way. I used a lot of metaphors and visualization techniques to help students understand the basic concepts of computers. homepage

Jul–Aug 2011 Software Engineer Intern, ALIPAY.COM, Shanghai, China

Alipay.com

Worked in the business service department and helped to develop a system for monitoring transaction trend of the business partners.

EDUCATION

2012–Present University of Science and Technology of China, Hefei, China

Masters of Science

Direction: Computer Architecture · School: Computer Science and Technology
Description: Taught the knowledge of parallel programming, heterogeneous computing, VLSI design, etc. I proposed several approaches to implement efficient graph algorithms on GPU. My thesis is intended to provide a fast, easy, and scalable **graph processing framework** on GPU.
Advisor: Prof. Hong AN

2008–2012 Tongji University, Shanghai, China

Bachelor of Science

GPA: 4.2/5 · School: Computer Science and Technology
Description: Taught the basic principles of computers. Studied information theory, operating systems, computer organization, compiler principles, circuits, etc.
Honors: first-class and third-class scholarship

PUBLICATIONS

March 2014 Understanding the Impact of Topology of Graph Exploration on GPU

To be submitted

I invent a model to analyze the components of SIMD underutilization in GPU architecture and design a novel **graph exploration** algorithm to tackle the load-imbalance problem when processing intrinsically irregular graph instances.
Authors: Yichao Cheng, etc.

August 2013 A Criticality-aware DVFS Runtime Utility for Optimizing Power Efficiency of Multithreaded Applications

HPPAC (IPDPS Workshop) We designed a runtime utility, which can find critical threads in multithreaded programs and then optimize the power and performance by scaling frequency. Authors: Haibo Zhang, Wenting Han, Feng Li, Songtao He, Yichao Cheng, etc.

SIDE PROJECTS

Dreamsome A XKCD-style online comic book. homepage

The Vivid Schemer An interactive version of **The Little Schemer** / Online interpreter for Scheme Language (subset). This work was once on the Top 10 **Hacker News**. homepage

WeakPoint A slide authoring tool by using markup languages. This work is stared by over 40 people on **Github**. homepage

Blastroid A shooting game created with Allegro 5.0 library in Pure C.

Hazard A signal-level MIPS CPU simulator.

Grafic A lightweight **painting tool** providing both pixel and vector mode.

Myvfs A toy UNIX-like virtual filesystem.

GeekMusic An electronic organ in x86 assembly language.

EasyLab A command-line tool to run **experiments**, collect result, and **plot figures** automatically. User can use sql to query results in a free manner.

Visualization Techniques

Visualizing the graph traversal algorithms. demo

Visualizing the datapath of a MIPS machine. demo

A Visualized CUDA programming tutorial. demo

OTHER INFORMATION

Translated Books *Head First C* · O'Reilly Media

Programming Massively Parallel Processors, Second Edition · Nvidia

Talks Understanding Tomasulo Algorithm · In this presentation, I used a **producer-consumer** model to illustrate the idea of Tomasulo Algorithm. slide

Computer Skills C, C++, Python, Java, Scheme, JavaScript, HTML, CSS, Assembly languages, LaTeX, Excel, Linux, Photoshop, Sketchbook

Interests Drawing · Designing webpages · Running · Writing (my blog) · Soccer