Chang Lou
Curriculum Vitæ

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RESEARCH EXPERIENCE

JULY 2015 – SEPT 2015

Research Assistant
Columbia University Software Systems Lab

Advisor: Junfeng Yang
Focusing on enabling Valgrind to detect data races in UserMode Linux, involving multi-thread programming, kernel programming and dynamic instrument tools.

APRIL 2014 – JULY 2015

Research Assistant
Shanghai Jiao Tong University Advanced Network Lab

Advisor: Xiaofeng Gao
Focusing on energy efficiency algorithms in wireless sensor networks.

PROJECT EXPERIENCE

JULY 2015 – SEPT 2015

Enabling Valgrind on UserMode Linux

Data races in kernel are serious problems in system security area. So far there proves to be no efficient kernel race detector. So we're working on enabling Helgrind, a powerful thread debugger in Valgrind tool suite which finds data races in multithreaded programs using (POSIX p-)threads, to detect kernel races.

APRIL 2014 – JULY 2015

Coverage and Data Engineering in the Next Generation Wireless Network (4G)

A novel scheme for wireless sensor networks is put forward to optimize the network energy consumption. The new model turns the energy cost issue into an integer linear programming problem. The details have been written into one paper accepted by **WASA 2015**.

SEPT 2014 – DEC 2014

FreeFLY: An Automatic Control System on Quadcopter

The quadcopter is a multi-rotor helicopter that is lifted and propelled by four rotors. This vehicle has strong potentials in air movements and it deserves a better control system instead of dumb manual controls. We built a system running on host machines to receive data and send control signals. With the newly-built system, the quadcopter is able to perform automatic flying controls including both environment (like black lines) and human movement tracking. We also add a new control mode for users to manipulate the quadcopter with only a laser pointer.

EDUCATION

2012 – 2016 | **B.S., Computer Science**
GPA: 3.65/4.0
Shanghai Jiao Tong University

PUBLICATIONS

Energy-Aware Clustering and Routing Scheme in Wireless Sensor Network

Chang Lou, Xiaofeng Gao, Fan Wu, Guihai Chen
The 10th International Conference on Wireless Algorithms, Systems, and Applications

PATENTS

Beautifying Algorithm on QR Code

Chang Lou, Siyuan Qiao, Weichen Li

AWARDS

2015 | **The Meritorious Winner**
Mathematical Contest in Modeling (USA)

2014 | **The Second Prize**
National Mathematical Contest in Modeling (China)

2014 | **Shanghai Jiao Tong University Scholarship**
Shanghai Jiao Tong University

PROJECT EXPERIENCE (CONT.)

SEPT 2014 – DEC 2014

MusCode: An QR Code Abstraction App on Android

This app allows you to generate arbitrary picture containing arbitrary information recognized by QR code scanners. It adapts a novel algorithm making the quality and speed of image generation greatly improved. I assisted one of our teammates wrote one conference paper describing details of our algorithm, which won the **best paper award of CGI 2015**. A more industrial version of internal technique has been used to apply for **patents**.