Yumin Xia

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EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES | Master in Computer Science
Sept. 2016 - Dec. 2017 | LA U.S. • GPA: 3.97 / 4.00
XI'AN JIAOTONG UNIVERSITY | B.Eng in Computer Science and Technology
Sept. 2012 - Jun. 2016 | Xi'an, China • Major GPA: 88 / 100

INDUSTRIAL EXPERIENCE

BAREFOOT NETWORKS, COMPILER TEAM | Software Engineering
Nov. 2017 – Present | Santa Clara, California, USA

- We are building a compiler for the fastest programmable switch on earth! Currently, I am working on design and implementation of Packet Header Vertor allocation algorithm. Parser related register allocation and optimizations.

GOOGLE, DISPLAY & VIDEO ADS TEAM | Software Engineering Intern
Jun. 2017 – Sept. 2017 | MTV, California, USA

- A screen-diff test tool: when a rendering-server-related code change is submitted for code review, this tool will be triggered automatically, to build and run two different version of rendering server, replay traffic, render the returned result HTML content into images, and compare the rendered image. Unexpected differences will be captured and screen-diff image, alone with html differences, will be reported to the submitter.
- A protobuf search tool: For a given query (SQL-like syntax on protobuf fields), returns a set of matched protobufs. This tool extracts 2.4M protobufs out from 60GB binary logs hourly, indexes specified fields, and save them to Bigtable. It can return a result set in less than one second, out from 60M protobufs. The query syntx support exact or fuzzy match, on all types of protobuf fields (e.g. int, string, enum, and nested fields..), and it supports the 'has-a' query on 'repeated fields' (array), which can be combined with both fuzzy/exact match.

CHONGQING PERK CULTURE COMMUNICATION CO., LTD | Co-founder, CTO
Full stack web developer
Jan. 2013 – Aug. 2016 | Chongqing, China
Designed and developed a web application (called '.Flip') to support PerkSummit®, one of the most influential student conferences in southwestern China. This system includes student application management system, class enrollment, payment interface, a game-like badge system, and an internal social network. It is used by thousands of students and the admission committee of PerkSummit®. Server-side: PHP, CodeIgniter. Client-side: Bootstrap, jQuery; Database: MySQL.

ACADEMIC EXPERIENCE

RESEARCH IN NAMED-DATA NETWORKING (NDN)
System software development in modern C++
Aug. 2015 – Otc. 2017 | Internet Research Lab, UCLA

- Domain Name Service for Named Data Networking (NDNS). Design and implementation of: the NDNS security schema, NEC-like denial of existence, cache resolver, validator, and a certificate fetcher for NDNS. Publication at ICCCN: NDNS. Source code: gerrit
- Implementation and evaluation of several NDN cache policies based on NDNsim: github repo.

THE ACM/ICPC INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST
Captain of team 'StRcPy', assistant coach of XJTU
Sept. 2012 – Sept. 2015 | Xi'an, China

- Silver Medal of The ACM-ICPC Asia Regional Guangzhou Site 2014
- Gold Medal and Fifth Place of The ACM-ICPC Multi-Provincial Programming Contest Chengdu Site 2013
- Gold Medal and First Place of The ACM-ICPC Shaanxi Provincial Programming Contest 2013
- Web-Based ACM Training System of XJTU, abilities includes remote code submitting and judging, code management among ACM competitors in XJTU, and training plan management.

SELECTED PROJECTS

Software formal verification and visualization, IoT, Hardware...

- TrustCoq: Using machine-checked formal verification technique(Coq) to proof termination on a domain-specific language. The language describes the security schema of NDN applications. Specifically, this project formally proofef that, as long as a polcy, described in this language, can pass the termination check, it will terminate in a finite number of steps.
- DUCK: a dynamic universal software system visualization kit. This tool execute syntactical analysis on source code to produce interactive query-able figures to help programmer understand the software structure. The query-able interative feature addresses the scalability issue of visulization by letting user specify the what they want. Currently, C++ are supportted, based on libclang.
- Smart Gas Guardian: a smart home device prototype that could automatically adjust house's moisture and temperature, detect hazardous gases using MQ series sensor, and send alert message to user's phone if an emergency happens, using Raspberry Pi as gateway, connected to devices via Bluetooth.
- A pipelined CPU implementation on FPGA chips with the MIPS32 instruction set, using High-Level Synthesis Technique.

PROGRAMMING SKILLS

LANGUAGES
Over 5000 lines and used in production
C/C++ • Python • PHP • JavaScript
Over 2000 lines:
Coq(Gallina) • Assembly •
Familiar:
Java

OTHER SKILLS
Operating System:
Debian/Ubuntu
Version Control:
git • gerrit