Qian Cui

Personal Info

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Research Interest

- Clustering and Similarity Comparison
- Data Mining and Analysis
- Machine Learning

Work Experience

Jan 2013 - Jul 2015	**Embedded Engineer** at **Samsung Electronics**, Beijing Develop Linux wireless driver and software architecture of firmware for Samsung wiGig (*a new wireless technology based on 60Ghz*) chip. News for this work: Samsung wiGig News Port kernel to Samsung devices, responsible for optimization of power management on heterogeneous system (ARM A15 and A7)
Dec 2009 - Dec 2012	**FPGA Engineer** at **Space Star Co. Ltd**, Beijing Design parallel architecture and high-speed I/O solution including FPGA logic and hardware circuit

Education

Jan 2016 - Now	PhD of COMPUTER SCIENCE **University of Ottawa**, Ottawa Research Direction: Network security, specifically, anti-phishing
Sep 2007 - Dec 2009	Master of Computer Architecture in COMPUTER SCIENCE **BeiHang University**, Beijing Thesis: "High-Performance Data Exchange Mechanism for PSDM (Prestack Depth Migration) Hardware Accelerator"
Sep 2003 – Jul 2007	Undergraduate Degree in COMPUTER SCIENCE **BeiHang University**, Beijing Thesis: "Application in Distributed Systems with Domain Specific Languages Click"

Projects

Jan 2016 - Present	**Phishing sites detection** Although the number of phishing attacks is increasing over time, we find that few new attacks are created, instead, most of the attacks are the variation or duplications of another one. We build a phishing fingerprint database covering more than 50,000 phishing attacks, and detect new phishing attacks through the similarity comparison of fingerprint. The result shows that such method could detect more than 90% phishing variations Through exploring the servers hosting the phishing attacks, we could collect the source code of phishing kits. We use fuzzy hash to analyze the source code, and find many common code snippets. We are working on piecing together these code snippets to retrieve the creator fingerprint based on the programing style

We also monitor the phishing activities over time, and try to find the activity patterns, like geographic pattern or target pattern, to uncover the phishing activity tail

OCT 2014 - JUL 2015	**Shopping assistant** To help myself know when it's the best time to purchase my coveted items, I developed a crawler to track the price over different shopping sites, and find the best timing for purchasing
NOV 2013 - PRESENT	**wiGig wireless Linux driver and software architecture** This project is to develop an effective driver for Samsung high speed WiFi chip Optimize cache access efficiency during DMA operation Optimize DMA operation by pipelined DMA ring Optimize socket transmission for jumbo frames Get final performace: 3.0Gbps in UDP, 2.5Gbps in TCP
MAY 2011 - DEC 2012	**High-Speed prototype system based on PCI/PCI-E bus** Design DMA Engine based on Weighted Round Robin strategy, achieving up to 9Gbps throughput Design hardware circuit and software of data capture system based on PCI/PCI-E bus(*including FPGA logic and driver*)
JAN 2010 - APR 2011	**Optimization Viterbi and RS decoding algorithm** Implement Viterbi decoding parallel architecture based on Ping-Pong buffering strategy Implement RS decoding parallel architecture based on interleaving dividing strategy

ISSUED PATENTS

JUN 2011	CN 102361460 A (*in Chinese*) General high-speed parallel cycle interleaving Viterbi decoding method [Translated by Google]
SEP 2010	CN 101969358 A (*in Chinese*) High-speed parallel RS decoding method for space communication [Translated by Google]

PUBLICATIONS

- Qian Cui, Guy-Vincent Jourdan, Gregor v. Bochmann, Russell Couturier, Iosif-Viorel Onut. Tracking Phishing Attacks Over Time. 26th International World Wide Web Conference(WWW '17), 2017

- Qian Cui, Xiaopeng Gao, Xiang Long. Design and Implementation of PCI Express DMA Controller Based on Weighted Round Robin Policy (*in Chinese*). Microcomputer Information, 2010, 26(23):147-149.

- Zhe Zhang, Qian Cui, Xiaopeng Gao, Xiang Long. Modeling Network Application for Multi-Core Architecture (*in Chinese*). Microelectronics & Computer, 2007, 24(10):39-42.

SKILLS

- Over 50,000 Lines: C/Python/Shell
- Over 40,000 Lines: Verilog/Java