Qian Cui

Personal Info

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Research Interest

- Network Security
- Data Mining and Analysis
- Machine Learning

Work Experience

Jan 2013 - Jul 2015 | **Embedded Engineer** at **Samsung Electronics**, Beijing

- Designed Linux wireless driver and software architecture of firmware, and successfully solved bottleneck of data transfer, increased 150% performance Samsung wiGig News
- Optimized the power management model for Samsung mobile, covering five major models, like Galaxy Note2, and extended 10%-20% battery life

Dec 2009 - Dec 2012 | **FPGA Engineer** at **Space Star Co. Ltd**, Beijing

- Designed parallel encode/decode modules and increased 400% performance (two patents)
- Developed high-speed transfer board applied in multiple core products, and contributed more than 200,000$ annual benefit

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 Science, **BeiHang University**, Beijing

- Research Direction: Parallel computing and architecture optimization
- Thesis: "High-Performance Data Exchange Mechanism for PSDM Hardware Accelerator"

Sep 2003 – Jul 2007 | Bachelor of Computer Science, **BeiHang University**, Beijing

- Research Direction: Parallel computing in distributed system
- Thesis: "Application in Distributed Systems with Domain Specific Languages Click"

Projects

Jan 2016 - Present | **Phishing sites detection (2017 outstanding research project rewarded by IBM Canada Laboratory)**

- The innovative uses of the DOM fingerprint to detect phishing attacks, covering more than 90% attacks in 20,000 phishing sites (details shown in the published paper in WWW'17). This research has been integrated into IBM's security product: IBM Trusteer Rapport
- Retrieved the attackers' fingerprint through the source code analysis of phishing kits with fussy hash and clustering techniques
- Monitored the phishing activities overtime to uncover the phishing activity tail based on like geographic pattern or target pattern

Oct 2014 - Jul 2015 | **Shopping assistant**

- Help myself purchase the coveted items with best price through tracking the price over different shopping sites

Nov 2013 - Jul 2015 | **wiGig wireless Linux driver and software architecture**

- Designed the driver and firmware architecture for Samsung high-speed Wifi chip (achieving 3.0Gbps in UDP, 2.5Gbps in TCP), applied in Samsung TV products

May 2011 - Dec 2012 | **High-Speed prototype system based on PCI/PCI-E bus**

- Designed hardware circuit and software of data capture system based on PCI/PCI-E bus (achieving up to 9Gbps throughput), applied in multiple core products

Jan 2010 - Apr 2011 | **Optimization Viterbi and RS decoding algorithm (two patents)**

- Implemented Viterbi decoding parallel architecture based on Ping-Pong buffering strategy
- Implemented RS decoding parallel architecture based on interleaving dividing strategy
- Totally increased 400% performance

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