Ruian Duan

CONTACT

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OBJECTIVE

Spring 2015 Research Internship in web security, malware analysis, mobile security

EDUCATION

Georgia Institute of Technology, Georgia, US **Aug.2012 - May.2017(expected)**
PhD in Computer Science

- **Major GPA: 3.72/4.0**
- **Advisor: Wenke Lee, Director of Georgia Tech Information Security Center**
- Selected Courses: Applied Cryptography, Network Security, Computability and Algorithms, Computational Data Analysis, Machine Learning, Software Analysis and Testing

Tsinghua University, Beijing, China **Sep.2008 - Jul.2012**
B.E. in Computer Science and Technology

- **Major GPA: 88.4/100**
- Selected Courses: Computer Organization, Operating System, Theory of Computer Network

SKILLS

- Programming Language: Highly proficiency in C/C++, Java, Python, Javascript, Shell, VHDL, Verilog, Assembly language, HTML. Familiar with x10, NesC.
- Software: Matlab, Linux, ModelSim, Quartus, LaTeX

INTERESTS

Web Security, Mobile Security, Malware Analysis, Data Mining

EXPERIENCE

Sok: Engineering a Secure Android Ecosystem
PhD student **Georgia Institute of Technology** **Aug. 2014 - Nov. 2014**

- Systematically review and classify Android related research, into four phases incentive, infection, exploitation and profiting.
- Responsible for reviewing research on the permission model and Internet of Things.
- In permission model, isolating code and data efforts may be violated granularity issues, e.g. ad library and original app are running in the same process.
- Adoption in payment, automation, digital identity et al, raises the need for more secure Android.

Simhash-based Dynamic Cloaking Detection
Software Engineer Intern **Google Inc.** **May. 2014 - Aug. 2014**

- Advertisement spam is frustrating Google and advertisers use cloaking techniques to hide bad content and avoid detection.
- Proposed simhash-based solution to address dynamic cloaking detection.
- Implemented the detection system and evaluations are very good.
- Publication committtee decide to delay publication approval of this work because Google may implement and deploy this system.
- Patent submitted and currently under review.

Personal Search Object Statistics
Software Engineer Intern **Google Inc.** **May. 2013 - Aug. 2013**

- HappyHour is the group to build the infrastructure to collect, analysis and serve structured personal data in Google.
- Collected personal data statistics periodically from indexing pipeline in HappyHour.
- Made stats available as Dremel tables for easy analysis.
- Designed a workflow that is easy to extend for new stats and created charts/tables from dremel data.

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Analysis of DNS Changer Data
PhD student **Georgia Institute of Technology** **Aug.2012 - Feb. 2013**

- With the DNS query data from MAAWG, we worked out the infection rate for each ISP, city and country and found that the mitigation rate of ISPs varies from 25% to more than 75%.
- Set up a http server and designed a questionnaire to collect feedback from ISPs about what they have done to mitigate the infection. Through this, we would be able to find out the most efficient approaches against this malware. Also studied the influence of social media on the malware.
- Presented the result on general meeting of MAAWG Feb 19, 2013 at S.F, CA.

IPv6 Stack and Bidirectional Transmission of BCP based on BLIP
Summer Intern **University of Southern California** **Jul.2011 - Nov.2011**

- Looked into related platforms and protocols, including TinyOS, BLIP, RPL and BCP.
- Learned NesC and implemented IPv6 Stack of BCP based on BLIP.
- Debugged and evaluated BCP with IPv6 Stack on testbed.usc.edu. Performance of the modified BCP is almost the same as BCP. The bidirectional transmission part was taken over by other graduate students in ANRG.

Achieving Fast Update over Compressed Table for Parallel Lookup
Research Assistant **Tsinghua University** **Sep.2011 - Nov.2011**

- Implemented non-redundancy range-based routing table partition, fast update and dynamic redundancy based on ONRTC proposed by our group.
- Proved the lower bound of this set of solutions name CLUE and experiments verified the proof.
- Wrote a paper summarizing this work and it was accepted by ICDCS 2012.

Publications

[1] Meng Xu, **Ruian Duan** et al: Sok: Engineering a Secure Android Ecosystem, submitted 2014.

[2] Tong Yang, **Ruian Duan**, Jianyuan Lu, Shenjiang Zhang, Huichen Dai and Bin Liu. CLUE: achieving fast update over compressed table for parallel lookup with reduced dynamic redundancy, ICDCS 2012.

[3] Tong Yang, Zhian Mi, **Ruian Duan**, Xiaoyu Guo et al. An Ultra-fast Universal Incremental Update Algorithm for Trie-based Routing Lookup, ICNP 2012.

[4] Tong Yang, Bo Yuan, Shenjiang Zhang, Ting Zhang, **Ruian Duan** et al. Approaching Optimal Compression with Fast Update for Large Scale Routing Tables, IWQoS 2012.

[5] Tian Pan, Chenhui Zhang, Xiaoyu Guo, Junchen Jiang, **Ruian Duan**, Tianhao Zheng, Chengchen Hu and Bin Liu. Accelerating Protocol Identification in High Speed Routers via Hardware Coprocessor, IPDPS 2011.

Honors and Prizes

- **National Endeavor Scholarship (8/140)** **Oct.2011**
- **Tsinghua University - Volunteer Scholarship (1/140)** **Oct.2011**
- **USC Stipend (2/175)** **Aug.2011**
- **Tsinghua University - Wang Wang Scholarship (2/175)** **Dec.2010**
- **1st** Prize in 2nd Northern Lights Cup Social Entrepreneurship Contest(1/93) **Oct.2010**
- **National Endeavor Scholarship (6/160)** **Dec.2009**
- **3rd** Prize in 26th Beijing Physics Contest **Dec.2009**
- **1st** Prize in Electronic Practice (4/150) **Aug.2009**
- Outstanding Student in Sichuan Province **Mar.2008**