SHITONG ZHU

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EDUCATION

University of California, Riverside   Sep 2016 - Jun 2021 (expected)
Ph.D. in **Computer Science** - CGPA: 3.67/4.00   *Riverside, CA*
Advisor: Zhiyun Qian
Coursework: Design of Operating System, Advanced Operating System, Computer Security, Design and Analysis of Algorithms, Data Mining Techniques, Data Mining Using Tensor Methods, Advanced Computer Networks, Big-data Management, Advanced Computer Architecture, Information Retrieval & Web Search, Compiler Construction, Network Security

Chongqing University of Posts and Telecommunications   Sep 2012 - Jun 2016
BEng. in Telecoms Engineering (**with Honors**) - CGPA: 3.73/4.00 - Top 6%   *Chongqing, China*

PUBLICATIONS

[C4]   **ShadowBlock: A Lightweight and Stealthy Adblocking Browser**
Shitong Zhu, Umar Iqbal, Zhongjie Wang, Zhiyun Qian, Zubair Shafiq, and Weiteng Chen
In *Proceedings of The Web Conference* (**WWW '19**), to appear

[A1]   **AdGraph: A Machine Learning Approach to Automatic and Effective Adblocking**
Umar Iqbal, Zubair Shafiq, Peter Snyder, **Shitong Zhu**, Zhiyun Qian, and Benjamin Livshits
arXiv:1805.09155

[C3]   **Measuring and Disrupting Anti-Adblockers Using Differential Execution Analysis**
Shitong Zhu, Xunchao Hu, Zhiyun Qian, Zubair Shafiq, and Heng Yin
In *Proceedings of the 2018 Network & Distributed System Security Symposium* (**NDSS '18**)

[C2]   **Source-location Privacy Protection Strategy via Pseudo Normal Distribution-based Phantom Routing in WSNs**
Jun Huang, Meisong Sun, **Shitong Zhu**, Yi Sun, Cong-cong Xing, and Qiang Duan
In *Proceedings of the 30th Annual ACM Symposium on Applied Computing* (**SAC '15**)

[C1]   **On Selecting Composite Network-Cloud Services: A Quality-of-Service Based Approach**
Minkailu Mohamed Jalloh, **Shitong Zhu**, Fang Fang, and Jun Huang
In *Proceedings of the 2015 Conference on Research in Adaptive and Convergent Systems* (**RACS '15**)

[J2]   **A Defense Model of Reactive Worms Based on Dynamic Time**
Haokun Tang, **Shitong Zhu**, Jun Huang, and Hong Liu
Journal of Software, 2778-2788, Sep 2014

[J1]   **Propagation of Active Worms in P2P Networks: Modeling and Analysis**
Haokun Tang, Yukui Lu, **Shitong Zhu**, Jun Huang
Journal of Computers, 2514-2524, Sep 2014

PROJECTS

Stealthy Adblcoking   [C4]
Chromium (Blink/V8), C++   *UCR SecLab/UIowa*

· Built invisible adblocker that evades current generation of anti-adblockers with 100% of success rate in manual evaluation

· Replicated 98.2% of ad coverage achieved by popular adblocking extensions, while causing minor visual breakage on less than 0.6% of Alexa top 1K websites. In the meantime, page loads are sped up by over 5% on average

ML-based Automatic and Effective Adblocking [A1]
Chromium (Blink/V8)/Weka, C++/Python/JavaScript   *UCR SecLab/UIowa/Brave*

· Leveraged multiple layers of the web stack (HTML/HTTP/JavaScript) to train a classifier for blocking ads/trackers
· Replicated state-of-the-art filter lists with high accuracy (97.7%)
· Enhanced filter lists by automatically correcting their errors

Anti-Adblocker Measurement and Disruption via Dynamic Program Analysis [C3]
Chromium (V8), C++/Python   *UCR SecLab/UIowa*

· Modified V8 engine to apply differential execution trace analysis in Chromium
· Launched large-scale (Alexa top 10K) measurement, revealed 5-52 times more anti-adblockers than reported in prior literature
· Experimented with countermeasures against anti-adblockers, achieved promising effectiveness

Routing Privacy Preservation in Wireless Sensor Networks [C2]
MATLAB   *CUPT*

· Improved the diversity and the dynamicity of the phantom nodes distribution to conceal the source nodes
· Conducted both the theoretical and simulation-based analysis to show the improvement quantitatively

WORK EXPERIENCE

Graduate Student Researcher @ UCR CSE
Sep 2016 - Present
UCR SecLab   *Riverside, CA*

· Pursued research on web privacy (adblocking/anti-adblocking) and fulfilled the entire cycle of projects
· Published/co-authored papers accepted by or submitted to top-tier venues

Consulting Intern @ Deloitte TTL
Jan 2016 - Mar 2016
ERS - Technology Risk   *Shenzhen, China*

· Advised tech organizations to avoid being victim of a security breach through big data analytics
· Assisted team of a major bank in designing reliable identity and access management framework

Software Engineering Intern @ Douban Inc.
Jul 2015 - Sep 2015
Research & Development Center   *Beijing, China*

· Implemented new functionalities on server side, conducted web development in Python
· Designed and tuned Spark/Hadoop scripts processing data on distributed clusters
· Prototyped, implemented and tailored algorithmic details of "Douban NewMov Chart"

SKILLS

Languages	Python, C/C++, JavaScript, MATLAB
Others	Chromium, Selenium/Puppeteer, NodeJS, Hadoop/Spark, Git

HONORS & AWARDS

Dean's Distinguished Fellowship (full scholarship)	UC Riverside CSE, 2016-2017
2nd Class University Scholarship	CUPT, 2015-2016
National 2nd Prize @ National Olympiad in Informatics	China Computer Federation, 2009