YUCHEN ZHOU

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EDUCATION

Ph.D. (pursuing), in Computer Engineering **University of Virginia,** Charlottesville, VA

GPA: 3.98 *Aug 2009-May 2015(expected)*

Relevant courses: Design and Analysis of Algorithms, Programming Language, Operating Systems, Theory of Computation, Computer Architecture, Computer Security, Probability and Stochastic Process, Game theory.

B.Eng., Department of Electronic and Information Engineering **Tsinghua University***, Beijing, China*

GPA: 82.6/100 *Aug 2005-Jul 2009*

Relevant courses: Digital/Analog/RF circuit design; calculus, linear algebra, stochastic process; signal processing, communication theory, computer networks; Data structure, C++ programming, etc.

PAST EXPERIENCE

Graduate Research Assistant *Aug 2009-Present*

Security research group, Department of Computer Science University of Virginia, Charlottesville, VA

- Working with my advisor Prof. David Evans, I have done various research projects on improving the security, privacy and integrity of third-party service integrations. These projects have resulted in multiple publications and posters which I presented at various major security conferences and industry research centers.

Research Intern *May 2012-Aug 2012*

Internet Services Research Center (ISRC) Microsoft Research, Redmond, WA

- Under the supervision of Dr. Shuo Chen, I did a security field study of Single Sign-On service and built a system that automatically checks for hidden assumptions in the developer guide. Our work was published at USENIX Security Symposium and I presented the work in August of 2013.

Undergraduate Research Assistant *Sep 2008-May 2009*

Center for Intelligent Image and Document Information Processing Tsinghua University, Beijing, China

- Under the guidance of Prof. Shengjin Wang, I studied various feature extraction/classification techniques and applied them to eye detection algorithm to assist drowsy drivers.

Research Intern *Jul 2008-Aug 2008*

Center of Information Security and Cryptography, Department of Computer Science Hong Kong University, China

- I led a three-people team and completed the motion detection module on a multi-core DSP board in parallel fashion. Our work was published at a major security magazine in China.

Student Research Trainee *Mar 2008-July 2008*

Lab of New Generation Network Technology and Application Tsinghua University, Beijing, China

- I participated in the optional student research training (SRT) program in my third year undergraduate and developed a search engine that focuses on removing duplicate query result. My work was published in the Journal of Information and Computational Science.

PUBLICATIONS

Understanding and Monitoring Embedded Web Scripts, **Yuchen Zhou** and David Evans, **to appear at** the 35th IEEE Symposium on Security and Privacy (Oakland), May 2015.

SSOScan: Automated Testing of Web Applications for Single Sign-On Vulnerabilities, **Yuchen Zhou** and David Evans, in proceedings of the 23rd USENIX Security Symposium, Aug, 2014.
Project homepage: http://www.ssoscan.org/

Explicating SDKs: Uncovering Assumptions Underlying Secure Authentication and Authorization, **Rui Wang**, **Yuchen Zhou (co-first authors)**, Shuo Chen, Shaz Qadeer, David Evans and Yuri Gurevich, in proceedings of the 22nd USENIX Security Symposium, Aug, 2013.
Project homepage: http://www.cs.virginia.edu/yuchen/explicatingSDKs/

Protecting Private Web Content from Embedded Scripts, **Yuchen Zhou** and David Evans, in proceedings of the 16th European Symposium on Research in Computer Security (ESORICS), Sep, 2011.
Project homepage: http://www.cs.virginia.edu/DOMinator

Why Aren't HTTP-only Cookies more widely deployed, **Yuchen Zhou** and David Evans, appeared in the 4th workshop on Web 2.0 Security and Privacy, IEEE Security and Privacy Symposium, Mar, 2010.

Improved Fuzzy Set Information Retrieval Approach on duplicate webpage detection, **Yuchen Zhou**, Zuoda Liu, Beixing Deng, Xing Li, in proceedings of Journal of Information and Computational Science, May, 2009.

AWARDS

Louis T. Rader Research Award, School of Engineering and Applied Science, University of Virginia.　　　May, 2014

Student Travel Grant, USENIX Security Symposium.　　　Aug, 2013

IMPORTANT IMPLEMENTATIONS　　　　　　　　(sorted in reverse chronological order)

- Modified Mozilla Firefox (C/C++/JavaScript) to support security-critical API call interceptions and policy checking functionality.
- Implemented an automated vulnerability scanner (JavaScript/Ruby) for web applications powered with Facebook Single Sign-On.
- Studied and modeled Facebook and Microsoft Single Sign-On systems (C++/PHP/JavaScript/Boogie) to discover implicit security-critical assumptions, common developer pitfalls and SDK vulnerabilities.
- Modified Google Chromium Browser (C/C++) to enable fine-grained access control policy enforcement on DOM APIs and JavaScript execution contexts.
- Designed and implemented 2-Player West Virginia bot/3-player Texas Hold'em robot (C/C++) for poker AI competition.
- Used TPM (Trusted Platform Module) to encrypt cookies in network traffic (C/C++/JavaScript) to prevent cookie stealing and cross-site scripting attacks.
- Used TPM to attest all processes running on the linux OS (C/C++) to provide proof of binary integrity to a remote challenger.
- Implemented a customized version of Adaboost and special image filter (C/C++) to detect drowsy drivers using video cameras mounted on the car dashboard.
- Implemented a handwriting recognition algorithm (Matlab) by applying Kernel PCA method.

PROGRAMMING SKILLS

Most proficient: JavaScript, C/C++, Ruby.

Prior Experience: Java, Python, PHP, Perl, Matlab, R, Linux Shell, OCAML, VHDL/Verilog and SQL.

Familiar with HTML5/CSS, various libraries and frameworks in aforementioned languages (e.g. OpenCV, Rails, jQuery).

REFERENCES

David Evans (Ph.D. advisor), Full Professor, Department of Computer Science, School of Engineering, University of Virginia, Phone: (434) 409-5443, Email: evans@cs.virginia.edu

Shuo Chen (Microsoft research mentor, Ph.D. dissertation committee member), Ph.D., Researcher, Internet Service Research Center, Microsoft Research Redmond, Phone: (425) 444-9436, Email: shuochen@microsoft.com

Westley Weimer (Ph.D. dissertation committee member), Associate Professor, Department of Computer Science, School of Engineering, University of Virginia, Phone: (434) 924-1021, Email: weimer@virginia.edu