Victor Heorhiadi
Curriculum Vitae

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Intentionet
999 3rd Ave, Ste 700
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Education

Doctor of Philosophy in Computer Science   *2017*
University of North Carolina at Chapel Hill   Chapel Hill, NC
Focus in Software-Defined Networking, network optimization, and security

Master of Science in Computer Science   *2013*
University of North Carolina at Chapel Hill   Chapel Hill, NC
Focus in network security

Bachelor of Science in Computer Science   *2011*
University of Minnesota Twin Cities   Minneapolis, MN
Focus in computer security: privacy and anonymity

Experience

Software Engineer   *2017-present*
Intentionet   Seattle, WA

Graduate Research Assistant   *2011-2017*
University of North Carolina at Chapel Hill   Chapel Hill, NC

– Researched global network optimization with applications to Software-Defined Networking (SDN)

– Built a framework for expressing optimization components of different SDN applications

– Developed workload distribution techniques for network intrusion detection systems

– Analyzed user behavior and computer infection data from a large enterprise

Summer Internship   *June-August 2015*
IBM Research   Yorktown Heights, NY

– Created an SDN-inspired tool for testing microservice applications using distributed fault injection and assertion checking

– Built and tested custom microservice-based applications in an enterprise cloud environment

Undergraduate Research Assistant   *2009-2011*
University of Minnesota Twin Cities   Minneapolis, MN

– Built a distributed censorship-resistant content publishing system

– Improved a distributed anonymity system (ShadowWalker) to resist malicious attacks

– Studied Distributed Hash Tables and Network Coordinate Systems as deployed in the Vuze torrent network

Awards and Honors

National Science Foundation Graduate Research Fellowship

Lando Scholarship Merit-based scholarship awarded to outstanding computer science undergraduate students

Dean's List at University of Minnesota 3 semesters

Technical Skills

Networking Extensive experience with building networking applications, network simulations, and Software-Defined Networking.

Security Good grasp of anonymity and privacy, intrusion detection and prevention, network attacks.

Data analysis Competent at analyzing large amounts of scientific data and network traffic. Intermediate understanding of machine learning for data analysis and prediction.

System Development Intermediate knowledge of kernel development and low-level programming, made modifications to Linux Kernel and Xen hypervisor code.

Languages/Tools Python (fluent), C/C++/Go and Java (proficient), JavaScript (limited experience).

Communication skills Fluent in three languages, gave numerous technical talks.

Publications

[1] Victor Heorhiadi, Sanjay Chandrasekaran, Michael K. Reiter, and Vyas Sekar. "Intent-driven Composition of Resource-management SDN Applications". In: *Proceedings of the 14th International Conference on Emerging Networking EXperiments and Technologies*. CoNEXT '18. New York, NY, USA: ACM, 2018, pp. 86–97.

[2] Victor Heorhiadi, Michael K. Reiter, and Vyas Sekar. "Simplifying Software-Defined Network Optimization Using SOL". In: *Proceedings of the 13th USENIX Symposium on Networked Systems Design and Implementation*. NSDI'16. Mar. 2016.

[3] Victor Heorhiadi, Shriram Rajagopalan, Hani Jamjoom, Michael K. Reiter, and Vyas Sekar. "Gremlin: Systematic Resilience Testing of Microservices". In: *Proceedings of the 36th IEEE International Conference on Distributed Computing Systems*. ICDCS'16. 2016.

[4] Eric Chan-Tin, Victor Heorhiadi, Nicholas Hopper, and Yongdae Kim. "Hijacking the Vuze BitTorrent network: all your hop are belong to us". In: *IET Information Security* (2014).

[5] Victor Heorhiadi, Seyed K. Fayaz, Michael K. Reiter, and Vyas Sekar. "SNIPS: A software-defined approach for scaling intrusion prevention systems via offloading". In: *Proceedings of the 10th International Conference on Information Systems Security*. ICISS'14. Dec. 2014.

[6] Ting-Fang Yen, Victor Heorhiadi, Alina Oprea, Michael K. Reiter, and Ari Juels. "An Epidemiological Study of Malware Encounters in a Large Enterprise". In: *Proceedings of the 21st ACM Conference on Computer and Communications Security*. CCS'14. Nov. 2014.

[7] Victor Heorhiadi, Michael K. Reiter, and Vyas Sekar. "New opportunities for load balancing in network-wide intrusion detection systems". In: *Proceedings of the 8th international Conference on Emerging networking experiments and technologies*. CoNeXT'12. Dec. 2012.

[8] Eugene Y. Vasserman, Victor Heorhiadi, Nicholas Hopper, and Yongdae Kim. "One-Way Indexing for Plausible Deniability in Censorship Resistant Storage". In: *Proceedings of the 2nd Usenix Workshop on Free and Open Communications on the Internet*. FOCI'12. Aug. 2012.

[9] Eric Chan-Tin, Victor Heorhiadi, Nicholas Hopper, and Yongdae Kim. "The Frog-Boiling Attack: Limitations of Secure Network Coordinate Systems". In: *ACM Transactions on Information and System Security* 14.3 (Nov. 2011).

[10] Max Schucard, Alexander W. Dean, Victor Heorhiadi, Nicholas Hopper, and Yongdae Kim. "Balancing the shadows". In: *Proceedings of the 9th annual ACM Workshop on Privacy in the Electronic Society*. WPES '10. Oct. 2010.

Posters, Talks

- **Robust Composition of Network and Security Applications using Software-Defined Networking**, Poster, *Science of Security Community Forum*, 2016

- **Simplifying Policy Enforcement using SOL**, Poster, *Science of Security Community Forum*, 2015

- **Enabling Software-Defined Network Optimization Applications Using SOL**, Poster, *NSDI,* 2015

- **Scaling Network Intrusion Prevention Systems**, Talk, *Science of Security Community Forum*, 2014

- **SNIPS: A Software-Defined Approach for Scaling Intrusion Prevention Systems**, Poster, *Science of Security Community Forum*, 2014