William Frederick Koch III

Curriculum Vitae
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RESEARCH AREAS

Cyber security ◻ Mobile security ◻ Moving target defense

EDUCATION

BOSTON UNIVERSITY, Boston, MA   Present
PhD Candidate

STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, NJ   December 2013
M.S. computer engineering, concentration in intelligent systems
GPA: 3.8/4.0
Thesis: "A framework for assisting learners by incorporating knowledge to aid
in predicting nerve guidance conduit performance"

UNIVERSITY OF RHODE ISLAND, Kingston, RI   May 2008
B.S. computer engineering, minor in mathematics
GPA: 3.2/4.0

RESEARCH EXPERIENCE

STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, NJ   1/2012 to 5/2013
Research Assistant
- ◻ Developed novel machine learning algorithms to integrate prior domain knowledge.
- ◻ Worked directly with biomedical engineering department to predicting the performance of nerve guidance conduits using developed algorithms.

TEACHING EXPERIENCE

INTERNAL DRIVE TECH CAMPS, Princeton, NJ   6/2012 to 8/2012
Programming Instructor
- Created lesson plans for wide range of skill levels. Topics included: object oriented fundamentals, polymorphism, exception handling and third-party library integration.
- Placed emphasis on coding style and best practices not enforced in academia.
- Advised students through final projects ranging from web crawlers to 2D video games.

STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, NJ   1/2012 to 5/2012
Teachers Assistant
- Graduate class CPE 555 Real-Time and Embedded Systems
- Undergraduate class EE 250 Mathematics for Electrical Engineers

PROFESSIONAL EXPERIENCE

MIT LINCOLN LABORATORY, Lexington, MA   1/2016 to 6/2016
Security Researcher
- Developed novel network attacks.

CAPSULES, LLC   6/2013 to 8/2014
CEO / Co-founder
- Managed team to create a geo-location based augmented reality mobile app.
- Lead mobile developer responsible for overall design and implementation.
- Designed web service API.

SILA SG, Shelton, CT   9/2010 to 1/2012
Software Engineer
Subcontractor for Sikorsky Aircraft Corporation CH53-K Program
- Responsible for system integration between Sikorsky CH-53K Integrated Support System (ISS), Sikorsky Engineering, and Goodrich Ground Support Software (GSS).
- Designed and implemented continuous integration environment.
- Software lead on seven projects built to support the Sikorsky CH53-K ISS.

CT HACKERSPACE, INC., Watertown, CT   8/2010 to 8/2011
Chairman / Co-founder
- Planned, organized and built a hackerspace for Connecticut.
- Facilitator of monthly board meetings.
- Administrator for cthackerspace.com website.
- Volunteered teaching Arduino workshops.

AIS CONSULTING INC., Shelton, CT   6/2006 to 9/2010
Software Engineer
Subcontractor for Sikorsky Aircraft Corporation CH53-K Program
- Designed, and developed Data Transfer System (DTS), a system to synchronize data between a master server and multiple clients
- Developed Virtual Test Environment (VTE), a web-based tool used to manage, create and deploy clones of virtual machines for testing software on different computer configurations.
- Developed Seek, a web-based testing tool for Interactive Electronic Technical Manuals (IETMs) distributed to the U.S. Navy and U.S. Army.
- Designed, and developed Electronic Work Cards (E-cards) Application, a web-based application comprised of a collection of procedures that enable a mechanic to work on an aircraft without carrying multiple manuals.

PROJECTS

Android Leak Hunder
https://github.com/wil3/android-leak-hunter
Perform automated batch analysis of Android applications to identify potential information leakages through network connections.

Lacus
https://github.com/wil3/lacus
Reservoir computing library using publish-subscribe design patterns to decrease complexity and provide a framework in which neurons operate as autonomous agents.

PUBLICATIONS

1. William Koch, Abdelberi Chaabane, Manuel Egele, William Robertson, and Engin Kirda. "Semi-Automated Discovery of Server-Based Information Oversharing Vulnerabilities in Android Applications", *Under review*.

2. Eugene Kolodenker, William Koch, Gianluca Stringhini, and Manuel Egele. "PayBreak: Defense Against Cryptographic Ransomware", *Under review*.

3. Samuel Jero, William Koch, Rickard Skowyra, Hamed Okhravi, Cristina Nita-Rotaru, and David Bigelow. "Identifier Binding Attacks and Defenses in Software-Defined Networks", *Under review*.

4. William Koch, and Azer Bestavros. "Hyp3rArmor: Reducing Web Application Exposure to Automated Attacks", *Under review*.

5. William Koch, and Azer Bestavros. "Provide: Hiding from automated network scans with proofs of identity." Hot Topics in Web Systems and Technologies (HotWeb), 2016 Fourth IEEE Workshop on. IEEE, 2016.

6. Hoda Maleki, Saeed Valizadeh, William Koch, Azer Bestavros, and Marten van Dijk. "Markov modeling of moving target defense games." In Proceedings of the 2016 ACM Workshop on Moving Target Defense, pp. 81-92. ACM, 2016.

7. William Koch, Yan Meng, Munish Shah, Wei Chang, and Xiaojun Yu. Predicting nerve guidance conduit performance for peripheral nerve regeneration using bootstrap aggregated neural networks. In Neural Networks (IJCNN), The 2013 International Joint Conference on

8. Munish B. Shah, Wei Chang, Kathleen McGuire, William Koch, Yan Meng, and Xiaojun Yu. "Using Bootstrap Aggregated Neural Networks for Peripheral Nerve Injury Treatment." In *Proceedings of the International Conference on Data Mining (DMIN)*, p. 1. The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp), 2014.

LANGUAGES AND EXPERTISE

Java □ Python □ Perl □ Matlab □ C/C++ □ JavaScript □ SQL □ HTML □ XML □ LaTeX

Machine Learning □ Data Mining □ Software Design □ Network and Software Security □ Android □ Web Services □ Web Applications □ Build Systems □ Version Control □ Linux □ Microsoft Windows □ Testing □ Integration

PERSONAL INTERESTS

Backpacking □ Snowboarding □ Surfing □ Cooking