# William Frederick Koch III

Curriculum Vitae
January 2016

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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**

- Assisted professor in research activities to develop novel machine learning algorithms specifically focusing in methods to integrate prior domain knowledge.
- Worked directly with biomedical engineering department to test new methods in a real-world application, predicting the performance of a nerve guidance conduit.

## 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 covered 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

**CAPSULES, LLC** 6/2013 to 8/2014
**CEO / Co-founder**

- Managing team to work towards a common vision.
- 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.
- Organizer and 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 used to synchronize data between a master server and multiple clients using web services and proxy databases.
- 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.

**Flexor**
*https://github.com/wil3/flexor*
JavaScript ARM Emulator closely emulating the ARM7TMDI 3-staged pipeline processor. It currently implements a subset of the THUMB ARMv5 ISA. Created as an academic tool to learn the inner workings of a processor.

**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, 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
2. Shah, Munish B., 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