KEVIN LYNCH

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126 Montgomery Street 3A ⋄ Highland Park, NJ 08904

EDUCATION

Master of Science in Computer Science *January 2010*
Drexel University Philadelphia, PA

Bachelor of Science in Computer Science *Summa Cum Laude* *September 2007*
Drexel University Philadelphia, PA
Minors in Mathematics and Philosophy

TECHNICAL STRENGTHS

Languages	Python, Ruby, Shell, C/C++, Java, JavaScript, SQL, XSLT, Lisp, Stratego
Frameworks	Django, Ruby on Rails, Android, GWT, Java EE, Spring
Software	PostgreSQL, MySQL, Apache, Tomcat, JBoss, Amazon Web Services, KVM, ESXi, VirtualBox, Git, SVN, Emacs, Eclipse, Jenkins, Sonar, Maven, Puppet, Chef, Nagios, Cisco IOS

PROFESSIONAL EXPERIENCE

Drakontas LLC June 2012 - present
Lead Software Engineer *Glenside, PA*

- Leads the design and development of a web and mobile based command and control system for the security sector
- Introduced engineering and operations best practices to automate the deployment, testing, and recovery processes
- Streamlined the release process to integrate seamlessly with resellers' business and production environments
- Consults with customers in the specification of new requirements, and lead the design and implementation of the services necessary to satisfy the requirements

Intel Corporation September 2004 - March 2005
Validation Engineer *Hudson, MA*

- Performed validation work on the system interface of a multi-core Itanium2 and Xeon processors
- Analyzed and validated parts of the processor HDL code, simulating it's functionality in C++
- Tested and analyzed coverage for the router box of the system interface
- Assisted in optimizing test performance and porting tests to another processor

Cisco Systems, Inc. June 2004 - September 2004
Intern *Boxborough, MA*

- Collaborated with Drexel University Electrical & Computer Engineering Department and Cisco
- Experimented and improved methods to better balance network traffic loads in Cisco AutoBandwidth
- Analyzed network experiments performed in a TCP/IP network environment testbed
- Configured and maintained Cisco routers for experiments

RESEARCH EXPERIENCE

Aniketos March 2008 - June 2012
Drexel University *Philadelphia, PA*

- Designed an autonomic framework using computational geometry to learn and detect healthy and unhealthy states using runtime metrics
- Developed the system to collect runtime metrics, perform fault detection and classification, and apply appropriate mitigations in real-time
- Tested the system on deployments of Java web applications across multiple hosts and virtual machines
- Designed robust general and application specific mitigations for faults and other Quality of Service violations
- Explored the effects of mitigations on known and unknown faults and service violations with no advance knowledge of monitored system

Sapient March 2010 - September 2010
ACIN Program for Warfigher Support *Camden, NJ*

- Researched topology and communications techniques used in mobile ad-hoc networks and delay-tolerant networks for use in radio communication
- Evaluated the reliability, robustness, and efficiency of existing MANETs and DTNs on simulated large-scale virtualized networks
- Demonstrated the feasibility of integrating theoretical DTNs using radio hardware

Lockheed Martin Advanced Technology Laboratories September 2008 - December 2010
Researcher on Astraeus Project *Cherry Hill, NJ*

- Designed and built a multi-platform testbed for analysis of systems consisting of various heterogeneous, multi-core, and real-time architectures
- Designed and developed a system to load and store fresh or custom operating system images using a web interface
- Provided tools for dynamic construction and configuration of custom Windows, Linux, and VxWorks images with custom programs and analysis software
- Developed a backend system for scheduling, controlling, monitoring, and isolating hosts and networking components
- Developed a web-based frontend for users to control and connect to reserved nodes via web-based terminals

Lockheed Martin Advanced Technology Laboratories September 2008 - December 2010
Researcher on Chimera Project *Cherry Hill, NJ*

- Assisted with development of a grammar for parsing C++ programs to support automatic source-to-source transformation of code segments to run on heterogeneous architectures
- Designed and developed algorithms to automatically select, parallelize, and transform code segments to run on streaming IBM Cell processor cores
- Developed algorithms to correctly and efficiently transfer memory blocks from a host controller to an appropriate streaming processor's cache
- Developed a framework for dynamic loading and hotswapping of code segments on heterogeneous architectures

REDetector September 2006 - September 2007
ACIN Program for Warfigher Support *Camden, NJ*

- Developed a tool for detecting reverse engineering tools running, residing, or removed on a system
- Researched methods for detecting programs running directly on a system or in a virtualized environment
- Extended the detection system to discover traces of reverse engineering tools inside and outside of a virtual machine

Communications Simulator and Planner September 2005 - September 2006
ACIN Program for Warfigher Support *Camden, NJ*

- Investigated performance and robustness enhancements that could be made to the software system
- Used verification tools to discover, document, and track flaws within the software system
- Developed a regression test suite to perform the verification task

PATENTS

1. "Detection, Diagnosis, And Mitigation Of Software Faults", by S. Mancoridis, C. Rorres, M. Shevertalov, K. Lynch, E. Stehle. PCT/US2011/022846.

PUBLICATIONS

1. "An n-dimensional Convex Hull Approach for Fault Detection and Mitigation for High Degree of Freedom Robots Humanoid Robots", by K. Lynch, D. Lofaro, P. Oh. In the Proceedings of the 12th International Conference on Control, Automation and Systems (ICCAS'12), Jeju Island, Korea, October, 2012.
2. "Diagnosis of Software Failures Using Computational Geometry", by E. Stehle, K. Lynch, M. Shevertalov, C. Rorres, S. Mancoridis. In the IEEE/ACM Proceedings of the 26th International Conference on Automated Software Engineering (ASE'11), Oread, Lawrence, Kansas, USA, November, 2011.
3. "Reverse Engineering Utility Functions Using Genetic Programming to Detect Anomalous Behavior in Software", by S. Wong, M. Aaron, J. Segall, K. Lynch, S. Mancoridis. In the IEEE Proceedings of the 17th Working Conference on Reverse Engineering (WCRE'10), Beverly, Massachusetts, October, 2010, pp 141-149.

4. "Using Search Methods for Selecting and Combining Software Sensors to Improve Fault Detection in Autonomic Systems" , by M. Shevertalov, K. Lynch, E. Stehle, C. Rorres, and S. Mancoridis. In the IEEE International Symposium on Search Based Software Engineering (SSBSE'10), Benevento, Italy, Sepetmber, 2010.
5. "On the use of Computational Geometry to Detect Software Faults at Runtime", by E. Stehle, K. Lynch, M. Shevertalov, C. Rorres, and S. Mancoridis. In the IEEE Proceedings of the International Conference on Autonomic Computing (ICAC'10), Washington DC, USA, June, 2010.
6. "High-performance implementations of the Descartes method", by J. Johnson, W. Krandick, K. Lynch, D. Richardson, A. Ruslanov. In the ACM Proceedings of the International Symposium on Symbolic and Algebraic Computation, Genova, Italy, July, 2006.

TEACHING EXPERIENCE

Dependable Software Systems	Instructor (Graduate level)
Software Design	Teaching Assistant (Graduate level)
Programming Languages	Teaching Assistant (Graduate level)
High Performance Computing	Teaching Assistant (Graduate level)
Programming Tools & Environments	Teaching Assistant (Graduate level)
Dependable Software Systems	Teaching Assistant (Graduate level)
Theory of Computation	Teaching Assistant (Graduate level)
Advanced Programming Tools & Techniques	Teaching Assistant (Undergraduate level)