

# Darian Anthony Patrick

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## *Web Application Security and Development Engineer*

### Core Competencies

- Web and Network Application Development
- Penetration Testing
- Security Architecture and Policy
- IdM Deployment and Administration
- Code Review
- System Administration

### Experience

#### Professional

June 2016–  
Jan. 2018 **Security Manager**, *Wikimedia Foundation*, San Francisco, CA.

In addition to duties of Application Security Engineer:

- During staff transition period, acted as sole full-time security engineer responsible for issue triage and mitigation, incident response, and security review
- Managed contractors responsible for augmenting security team capacity
- Led hiring efforts to increase security team size from one to three engineers
- Improved static scanning of MediaWiki software using **Veracode** and **Coverity**, and dependency monitoring using **Node Security Project**
- Implemented improvements in security review process, leading to increased capacity and consistency across reviews
- Collaborated with colleagues in Technology and Product teams to respond to security incidents and coordinated post-incident mitigation
- Used R to analyze and present plots and descriptive statistics on security issue frequency and status across the organization
- Led effort to improve and **expand two-factor authentication deployment (using OATH TOTP)** to reduce possibility for account hijacking
- Led effort to improve **OAuth** functionality, allowing collaborative management by community and Foundation staff

May 2015–  
May 2016 **Application Security Engineer**, *Wikimedia Foundation*, San Francisco, CA.

- **Conducted code review and penetration testing** of applications written in PHP, Perl, Python (Django), client-side JavaScript (client-side), Node.js (server-side JavaScript), Java, OCaml, and Lua
- Created code fixes to mitigate vulnerabilities in Wikipedia.org, Wiktionary.org, etc.
- Triageed and remediated security bugs in MediaWiki core and auxiliary extensions and services using PHP and JavaScript (Node.js)
- Automated dynamic scanning of Wikipedia desktop and mobile sites using OWASP ZAP, Selenium, and phantomjs

June 2014–  
May 2015 **Senior Application Security Engineer**, *Aspect Security, Inc.*, Columbia, MD.

In addition to activities from prior position:

- Discovered and reported vulnerabilities in widely-used commercial off-the-shelf software (IBM Sametime, Pervasive DB, Cisco NAC, BlackBerry 10)
- Proposed and implemented internal development program to produce novel, open source contributions to the security community
- Contributed to training for internal full-stack penetration testing

- May 2012–  
June 2014 **Application Security Engineer, Aspect Security, Inc., Columbia, MD.**
- o **Conducted software security assessments and code reviews** of web, desktop, and mobile applications for **large national and international financial, healthcare, and pharmaceutical customers**
  - o **Conducted security architecture reviews**, evaluating security controls and ensuring application and data integrity, accountability, and availability
  - o **Managed full-stack denial of service (DoS) testing**, evaluating the performance and resilience of ISP- and premise-based intrusion prevention and detection systems, web application and network firewalls, web and application servers, and other network infrastructure
  - o Trained new application security engineers
  - o Received numerous awards recognizing performance in high-risk security assessments
- Aug. 2007–  
Sept. 2011 **Senior Programmer Analyst, Application Security, University of Pennsylvania, Phila., PA.**
- o Deployed and managed university-wide instant messaging system based on the Openfire XMPP server
  - o **Conducted software security assessments and code reviews** of Java, PHP, Perl, and Oracle PSP (PL/SQL)-based web applications
  - o Deployed and managed CoSign for university-wide, single sign-on web authentication
  - o Collaborated in deployment and management of Shibboleth (SAML) for federated, inter-university web authentication
  - o Developed the WebLogin Management System, a Perl-based web application for provisioning of CoSign-authenticated web applications
  - o Drafted documentation for web authentication system and conducted workshops demonstrating deployment of CoSign for system administrators and web developers
  - o Collaborated in incident handling of web application security issues
  - o Improved Kerberos authentication handling in Zimbra groupware software
  - o Used PHP and jQuery to develop for voicemail scheduling, call forwarding, and zero out features in SER- and Asterisk-based VoIP system
  - o Conducted PHP 4 to 5 version migration reviews of web applications
  - o Implemented Java and C extension to Openfire IM Server to support Kerberos password-based authentication
  - o Developed PEAR package providing authentication against proprietary web authentication system
- Sept. 2005–  
Jan. 2016 **Principal, Application Development and Security, Criticode LLC, Philadelphia, PA.**
- o **Conducted software security assessments and code reviews** of Java, PHP, and Perl-based web applications
  - o Created e-commerce, information security, customer relationship management, and marketing communications applications for the publishing, financial, and media arts sectors, using PHP (CakePHP, Moodle, Joomla), Perl (Catalyst, Class::DBI), MySQL, and Apache
  - o Analyzed IdM system usage using R to derive trends pertinent to capacity planning and realtime scaling
  - o Administered CRAN repository and created R packages for private client
  - o Maintained identity management infrastructure (CoSign, Shibboleth) for large private university
  - o **Drafted and deployed mod\_security rules for virtual patching** of web application programming errors
  - o Designed and implemented K-12 student performance and outcomes tracking system in PHP (CakePHP) and Java (BIRT, Tomcat, OSGi)
  - o Implemented academic history tracking/transcript functionality for Philadelphia School of Psychoanalysis as Moodle extension
  - o Maintained and extended PHP-based application tracking K-12 student counseling interactions
  - o **Implemented security information and event management (SIEM) system** aggregating network security sensor data for real-time monitoring of system availability, security posture, and policy violation attempts
  - o Implemented web-based conference registration system utilizing S/MIME to secure e-mail communications
  - o Developed Voice over IP (VoIP) communications platform based on Asterisk PBX, integrating physical SIP instruments, IAX analog telephone adapters, as well as software phones, and using analog and IP trunks
  - o Deployed OpenID Connect-based server- (OP) and client-side (RP) infrastructure, exposing OpenLDAP internal authentication, for multi-party security incident tracking system using LemonLDAP::NG

- Mar. 2005–  
Sept. 2005 **Director of Information Technology**, *Solutions for Progress, Inc.*, Philadelphia, PA.
- o Managed team of four system administration and support staff, tasked with supporting 80+ in-office and remote users
  - o Partnered with construction architects and engineers to define and install necessary IT infrastructure during construction of new office and datacenter
  - o Created budget, organized vendors and subcontractors, and guided system administration staff in deployment and integration of IT infrastructure in newly constructed office space
  - o Led vendor evaluation and selection efforts for acquisition of office systems, including Cisco Call Manager-based VoIP system
  - o Reorganized IT department to more efficiently accomplish short- and long-term system administration and technical support goals
  - o Designed and scripted (using Perl) e-mail and internal instant messaging systems
  - o Performed various system administration and user support duties as needed
- Feb. 2004–  
Mar. 2005 **Software Developer - Technical Lead**, *The Benefit Bank, Solutions for Progress, Inc.*, Philadelphia, PA.
- o Lead team of seven software developers in architecture, design, and implementation of Perl-based web application providing access to federal, state, and local public assistance benefits, as well as federal and state tax filing, for low-income and disadvantaged people
  - o Created custom development environment, and supporting developer tool set, using Perl and standard XML processing tools, facilitating efficient application programming, compilation, and testing in the Unix environment
  - o Implemented network infrastructure improvements in support of development activities, including DNS, DHCP, and VPN
- Volunteer
- Jan. 2017–  
present **Mentor**, *Hackbright Academy*, San Francisco, CA.
- o Mentored adult students during twelve-week training sessions
  - o Shared experience in interview technique, self-guided learning, and career maintenance
  - o Offered technical guidance and assistance throughout session, and in particular, on final project specification and implementation
- Jul. 2017–  
present **Mentor**, *Code2040*, San Francisco, CA.
- o Mentored undergraduate and graduate computer science students in interview skills and career strategies

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## Technical Skills

Programming Languages	C, C++, C#, Java, <b>JavaScript</b> , Lua, OCaml, <b>PHP</b> , <b>Perl</b> , <b>Python</b>	Development Frameworks & Libraries	Bottle, CakePHP, Catalyst, Django, Express, Grails, JEE, JSTL, jQuery, Mojolicious, Node.js, Spring, Struts, Titanium/CGI::Application
Web Technologies	Apache, Jetty, lighttpd, mod_perl, nginx, PHP-Java Bridge, PSGI, Plack, Tomcat/tc Server, WSGI	Data Storage Systems	Memcached, MS SQL Server, MySQL, Oracle, PostgreSQL, Redis, SQLite
Cloud Services	Amazon AWS, Google App Engine, Heroku, Rackspace Cloud	Search Technologies	Elasticsearch, Lucy/KinoSearch, Lucene, Solr
IdM/Auth* Technologies	CoSign, MIT Kerberos 5, OATH, OAuth, OpenID 1.0, OpenID Connect, OpenLDAP, Shibboleth	AppSec Tools	Burp Proxy, Fiddler, Kali Linux, Metasploit, mitmproxy ModSecurity/mod_security, OWASP ZAP, RSA Silver Tail
Operating Systems	Linux, Mac OS X, MS Windows Server, FreeBSD, NetBSD, OpenBSD, OpenSolaris, Sun Solaris 10		

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## Language Competency

English	Native speaker
French	Intermediate

Spanish Beginner

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## Certifications

### Programming Languages

June 17, 2008 **ZCE, Zend Certified Engineer, PHP 5**, *Zend Technologies Ltd.*  
ClientCandidateID #ZEND005141, Registration #225801055

Mar. 28, 2007 **ZCE, Zend Certified Engineer, PHP 4**, *Zend Technologies Ltd.*  
ClientCandidateID #ZEND005141, Registration #219662349

### Software Security/Web Application Security

Aug. 31, 2007 **GSSP-JAVA, GIAC Certified Secure Software Programmer – Java**, *GIAC*.  
Exam Result ID 58813478538

May 19, 2007 **GWAS, GIAC Web Application Security**, *GIAC*.  
Analyst #0351

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## Education

2009–2012 **Cognitive Science**, *University of Pennsylvania*, Philadelphia, PA, *B.A. Incomplete*.  
Concentration in Cognitive Neuroscience, with coursework in Computer Science and Statistics