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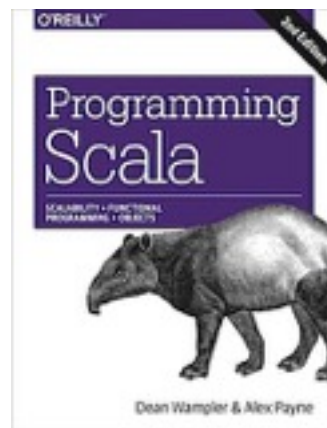
Leadership for *Data-Intensive* Software Teams

My expertise:

- **Reactive Applications:** Event-driven, scalable, resilient, and responsive applications using the [Typesafe stack](#).
- **Big Data:** Spark, Mesos, Hadoop and its ecosystem of tools. Machine Learning, some Data Science, SQL and NoSQL databases.
- **Programming Technology:** Functional Programming, Object-Oriented Programming, and Aspect-Oriented Programming using Scala, Java, JavaScript, Ruby, Bash, and other languages.
- **Scalable Technologies:** Scala with the Akka Framework, various data stores, Amazon Web Services, *NIX scripting languages.
- **Software Development Lifecycle and Team Leadership:** Startup team building. Agile and Lean development methods, process improvement, mentoring team members for career growth.

I am an author and speaker with an international reputation.

- **Programming Scala, Second Edition:** (O'Reilly, 2014) A concise and comprehensive introduction to the Scala programming language.
- **Programming Hive:** (coauthor - O'Reilly, 2012) A comprehensive guide to Hive, the SQL query environment for Hadoop.
- **Functional Programming for Java Developers:** (O'Reilly, 2011) A short introduction to Functional Programming and how the Java developer can benefit from it.
- **IEEE Software:** Co-editor of the special issue on "Multiparadigm Programming".
- **Industry and Academic Conference Speaker:** StrangeLoop, GOTO, QCon, Strata, Big Data Techcon, React, CodeMesh, Agile, OSCON, JavaOne, RubyConf, OOPSLA, AOSD, and others.



Experience

<p>Architect for Big Data Applications and Services Typesafe International November 2013 - Present</p>	<p>Driving the technical strategy expanding the Typesafe Reactive Platform with Spark and related tools, so that customers can build Big Data applications that are <i>Reactive</i>: message-driven, elastic, resilient, and responsive, using Scala or Java.</p> <ul style="list-style-type: none"> • Drove the technical strategy for the integration of Spark into the Typesafe Reactive Platform and the development of products and services targeted for Big Data applications. • Wrote the initial training materials for customers. • Mentored clients on Scala and the Typesafe stack. • Contributed to the development of the stack. • Member, Program Committee: Strata + Hadoop World New York 2014, GOTO Chicago 2014 - 2015, GOTO Aarhus and Copenhagen 2014, CodeMesh London 2013 - 2014, and Big Data Everywhere 2014.
<p>Owner and Principal Consultant Concurrent Thought International April 2013 - November 2013</p>	<p>Consulting on "Big Data" Analytics with Hadoop and Related Tools, Functional Programming with Scala and other languages, Agile software development practices.</p> <ul style="list-style-type: none"> • Mentored Cigna Insurance as they built out their first Hadoop clusters and implemented the first applications on them. Developed Scalding (Scala), Hive, and Java/Python MapReduce applications for analytics and machine learning at scale. • Mentored clients who are transitioning to Functional Programming using new languages, such as Scala, or older languages, such as Java, Ruby, and Javascript. • Mentored clients adopting Agile software development. • Co-author of <i>Get2Know the Hadoop Ecosystem</i> (O'Reilly, forthcoming). • Co-organizer of the Chicago Hadoop Users Group.
<p>Principal Consultant Think Big Analytics International April 2011 - April 2013</p>	<p>Consulting on "Big Data" Analytics with Hadoop and Related Tools.</p> <ul style="list-style-type: none"> • Founder of <i>Think Big Academy</i>, the training division of Think Big Analytics. Developed and delivered courseware on the Hadoop ecosystem, MapReduce programming in Java and Scala (Scalding), Hive, and Pig. • Implemented Hadoop-based data warehouse applications for clients in the fields of Internet services, genetics, e-commerce, and government. • Author, Functional Programming for Java Programmers (O'Reilly, July 2011). • Co-author, Programming Hive (O'Reilly, October 2012). • Creator of the open-source project, Stampede. • Organizing Committee member, OSCON 2011-2012, StrangeLoop 2011-2013, LambdaJam 2013, and GOTO Aarhus 2012. • Co-organizer of the <i>Development Languages, Practices, and Techniques</i> "stage" at Agile 2011. • Co-organizer of the FREECO @ Onward! 2011 : International Workshop on Free Composition. • <i>Cloudera Certified Hadoop Professional</i>.

<p>Senior Software Engineer DRW Trading Group Chicago, IL</p> <p>November 2009 - March 2011</p>	<p>Development of infrastructure software.</p> <ul style="list-style-type: none"> • Developed scalable, high-performance data collection and visualization applications for enterprise monitoring systems (Scala, JavaScript, Ruby, MongoDB). • Developed a high-performance, highly-reliable appliance for network traffic capture and analysis (Linux Kernel, C, Ruby, JavaScript). • Developed IT management and reporting applications (Ruby on Rails). • Co-guest editor for the <i>IEEE Software</i> special issue on "Multiparadigm Programming" (Sept./Oct. 2010). • Member of the organizing committee for <i>Commercial Users of Functional Programming</i> (Oct. 2010). • Co-organizer, "Scala Summit" at OSCON 2010 (July). • Visiting Faculty, Loyola University Chicago, <i>Pragmatics of Industrial Software Development</i> (Fall 2010).
<p>Senior Trainer, Mentor, and Consultant Object Mentor Chicago, IL</p> <p>July 2006 - October 2009</p>	<p>Training, mentoring, and consulting on Object-Oriented, Functional, and Aspect-Oriented Programming (OOP, FP, and AOP), Agile Methods, Scala, Enterprise Java, Ruby, C/C++, and C#.</p> <ul style="list-style-type: none"> • Co-author of Programming Scala (O'Reilly, Sept. 2009). • Developed and delivered courseware and conference talks on OOP, FP, AOP, Test-Driven Development (TDD), Refactoring, Agile techniques, Scala, Java, C++, Ruby, Polyglot and Poly-paradigm Programming, and craftsmanship. • Mentored clients on design, XP/agile methods, corporate agile transitions (<i>Agile in the Large</i>), Enterprise Java, C/C++, Ruby, Scala, and C#. • Founded the open-source project, Aquarium, an AOP toolkit for Ruby. • Founder of the Chicago-Area Scala Enthusiasts (CASE) user group.
<p>Principal Consultant Aspect Research Associates</p> <p>August 2005 - June 2006</p>	<p>Consultant on Aspect- and Object-Oriented Programming, Enterprise Java, Ruby on Rails, and Agile Methods.</p> <ul style="list-style-type: none"> • Architect and team lead for new services using the Spring Framework, Hibernate, and other lightweight enterprise Java technologies at an online advertising services provider in San Francisco, CA. • Contributed to a <i>Ruby on Rails</i> portal project at a major automotive manufacturer. • Mentored clients on Spring, AOP, and AspectJ. • Contributed to the AspectJ standard library project. • Speaker at several conferences on AOP and Ruby development.
<p>Directory of NCG Software Development BridgePort Networks Chicago, IL</p> <p>September 2003 - August 2005</p>	<p>Built and directed the Server Software Development Team for BridgePort's <i>Network Convergence Gateway</i> (NCG), telecom SCP/VLR that integrates VoIP and other IP media with CDMA and GSM wireless networks.</p> <ul style="list-style-type: none"> • Built development team from 2 to 10 members. • Project Management for all BridgePort development teams, using <i>Scrum</i>. • Participated in business development and requirements gathering. • Software process mentor and implementer. • Implemented Enterprise Java components and server tools.
<p>Site Owner Aspect Programming Polyglot Programming</p> <p>July 2003 - Present</p>	<p>Managed advocacy web sites for Polyglot and Poly-paradigm Programming (PPP) and Aspect Oriented Programming/Software Development (AOP/AOSD).</p> <ul style="list-style-type: none"> • Published conference talks and papers on PPP and AOP. • Founded Contract4J, a Java 5 and AspectJ tool that supports <i>Design by Contract</i> in Java. • Founded Aquarium, an AOP library for Ruby

<p>Sr. Product Manager IBM/Rational Software Redmond, WA</p> <p>January 2002 – August 2003</p>	<p>Senior Product Manager for the J2EE support in Rational XDE, a modeling and patterns-oriented development tool hosted in Eclipse.</p> <ul style="list-style-type: none"> Specified feature set for J2EE and Java Web Services support in XDE. Participated in whole-product strategies for product evolution and other marketing activities. Worked with Rational and IBM customers and IBM to understand their development needs and to evolve XDE to support those needs. Researched AOP and advocated AOP support in XDE.
<p>Software Architect Powerhouse Technology Seattle, WA</p> <p>January 2001 - September 2001 (Predecessor of BridgePort Networks.)</p>	<p>Software Architect for Powerhouse's <i>Pinpoint</i> technology for routing wireless telephone calls over the Internet to WiFi-enabled handsets.</p> <ul style="list-style-type: none"> Developed the network security architecture, utilizing IPSec, firewalls, proxies, etc. Explored conflicts between Internet standards for Voice over IP (VoIP), security (IPSec), and Network Address Translation (NAT). Designed solutions. Participated in requirements discovery and definition. Developed J2EE based administration services and network architecture Contributed to business-development and venture capital initiatives.
<p>Systems Design Engineer Mercata Bellevue, WA</p> <p>November 1999 - December 2000</p>	<p>Led the Advanced Development Team that investigated and implemented new technologies for Mercata, to improve Mercata's e-commerce site and to support corporate objectives for new business initiatives.</p> <ul style="list-style-type: none"> Team Lead for Mercata Marketplace™, a self-service portal for third-party sellers to offer PowerBuys™ hosted by Mercata (analogous to auctions on eBay). Implemented and maintained Mercata's web site for shoppers using WAP phone and Palm™ devices, using the BroadVision One to One™ e-commerce platform. Coauthored U.S. Patent applications for enhancements to Mercata's proprietary <i>Group Buying</i> technology. Participated in business development initiatives with Wireless and Broadband partners. Investigated Wireless and Interactive TV (iTV) technologies.
<p>Software Development Manager Sequel Technology Corporation Bellevue, WA</p> <p>January 1999 - October 1999</p>	<p>Managed teams developing the user interface and Internet-Protocol (IP) monitoring and filtering technology for Sequel's Internet Resource Manager™ (IRM).</p> <ul style="list-style-type: none"> Led effort to develop next-generation Java and web-based user interface. Contributed to requirements discovery, system architecture and design.
<p>Software Architect Global Mobility Systems (now part of OpenWave) Bellevue, WA</p> <p>April 1998 - January 1999</p>	<p>Project Lead and Architect for the second-generation Mobility Operating Environment™ (MOE), a three-tier, client-server, web-based system for advanced wireless telecom services.</p> <ul style="list-style-type: none"> Participated in requirements discovery. Implemented user-interface and server components in DHTML and Java.

<p>Staff Software Engineer Applied Microsystems Corporation Redmond, WA</p> <p>February 1995 - April 1998</p>	<p>Project Lead and Architect for a new user interface for an existing source-level debugger product line.</p> <ul style="list-style-type: none"> • Led requirements gathering, architecture, design, and implementation. • Developed a reusable C++ component framework for debugger-type applications based on the Galaxy Application Environment™ from Visix Software. • Designed a cross-platform user interface that supported Windows and X11/Motif design guidelines and exploited the principles of effective human-computer interaction (HCI). • Promoted use cases as a tool for driving quality assurance (QA) activities. • Mentored other engineers in object-oriented (OO) methods. • Supervised a small development team.
<p>Software Engineer III ATL Ultrasound, Inc. Bothell, WA</p> <p>June 1991 - February 1995</p>	<p>Developed user-interface and system-diagnostics software for real-time medical ultrasound system, the Ultramark 2000™.</p> <ul style="list-style-type: none"> • Pioneered the use of object-oriented methods and C++ at ATL. • Developed diagnostic user interface "panels" for technicians, customers, and other non-technical users. • Developed C/C++ software for the VxWorks and iRMX operating systems and X11 user interfaces.
<p>Software Engineer Technical Arts Corporation Redmond, WA</p> <p>January 1990 - April 1991</p>	<p>Developed user-interface, data-analysis, and system-control software for a real-time, three-dimensional scanning systems.</p> <ul style="list-style-type: none"> • Used object-oriented design techniques. • Implemented PL/M and C/C++ software for iRMX, UNIX V4.0, and DOS platforms.

Technologies

Software Development	<ul style="list-style-type: none"> • Distributed, “Reactive” Programming: 10 years of experience building distributed applications, most recently with Scala, Akka, Hadoop, and Play. • Hadoop, etc. for Data Analytics and Machine Learning: 4 years of experience with the Hadoop ecosystem (Spark, MapReduce, Hive, Scalding, Pig and Python streaming). Sentiment Analysis, Data Mining, and Clustering (Mahout, other tools). Some Storm, HBase, and Cassandra. Hosted clusters and Amazon Elastic MapReduce. • Functional Programming: 8 years of experience using Scala and some Clojure, Haskell, Erlang, and Scheme. • Aspect-Oriented Programming: 10 years of experience. Pioneering work on applications of AOP to the full development life cycle. Founder of Aquarium, an open-source AOP toolkit for Ruby and Contract4J for <i>Design by Contract</i> in Java. • Object-Oriented Programming: 25 years of experience using many OOP languages (Scala, Java, JavaScript, Ruby, C++). • Software Life-cycle: 8 years of experience with <i>XP</i>, <i>Lean</i>, and <i>Scrum</i>, Test-Driven Development (TDD) and Refactoring, Scaling Agile to Large Organizations. • Languages: Scala, JavaScript, Ruby, Java, C/C++, Bash and *nix tools, HTML, XML, CSS, plus some Clojure, Python, Erlang, Scheme, C#, and Perl. • Internet/Enterprise: Akka, Ruby on Rails, Spring Framework, JEE. • Datastores: Hadoop, MongoDB, MySQL, Oracle, some HBase and Cassandra. • Operating Systems: Linux shell and kernel programming. Mac OS X user. • Other: Concurrency, multi-platform portability, real-time and performance issues.
Management	<ul style="list-style-type: none"> • Project Management: <i>XP</i>, <i>Lean</i>, and <i>Scrum</i>, agile transitions for large organizations, resource and people management, scheduling and planning, team mentoring. • Technology Trends: Awareness and evaluation of technology and business trends relevant to team objectives. • Product Management: Technical and marketing contributions to strategic business initiatives. • Communications: Published author, frequent public speaker.
Internet and Telecom	<ul style="list-style-type: none"> • Internet Standards: Voice over IP (VoIP), IPSec protocols, Network Address (and Port) Translation (NAT/NAPT), DNS, <i>etc.</i> • Telecom: SS7 signaling protocols. • Wireless LANs: 802.11 (“Wi-Fi”) wireless LAN protocols.
User-Interface Technology	<ul style="list-style-type: none"> • Date Visualization: JavaScript visualizations of real-time data. • Human Factors: Effective presentation of information, visual clarity. • UI Design: For technical and non-technical users, for web and “rich-client” applications.

Publications, Speaking, and Teaching Engagements (indicates PDF)

Programming Scala, Second Edition	O'Reilly, December 2014
Programming Hive	(with Ed Capriolo and Jason Rutherglen) O'Reilly, October 2012
Functional Programming for Java Programmers	O'Reilly, July 2011
Programming Scala	(with Alex Payne) O'Reilly, September 2009
Clean Code	"Clean Systems" chapter of Robert Martin's <i>Clean Code</i> book
IEEE Internet Computing, The Functional Web	Guest author for <i>The Functional Web</i> column, "Scala Web Frameworks: Looking Beyond Lift" (Sept./Oct. 2011)
IEEE Software	Co-guest editor of the special issue on "Multiparadigm Programming" (Sept./Oct. 2010)
Scala eXchange 2014	<ul style="list-style-type: none"> • Why Scala Is Taking Over the Big Data World
React San Francisco 2014	<ul style="list-style-type: none"> • Error Handling in Reactive Systems
CodeMesh 2014	<ul style="list-style-type: none"> • SQL Strikes Back! Recent Trends in Data Persistence and Analysis
Big Data Techcon Boston and San Francisco 2014	<ul style="list-style-type: none"> • Copious Data: the "Killer App" for Functional Programming • H2O for Fast Data Analytics • Spark Streaming • Spark Tutorial • Scalding Tutorial • Factorie (Machine Learning) Tutorial
GOTO Aarhus and Copenhagen 2014	<ul style="list-style-type: none"> • Deep Dive into the Big Data Landscape (video)
ScalaDays 2014	<ul style="list-style-type: none"> • Why Scala Is Taking Over the Big Data World
Philly ETE 2014, Big Data Everywhere Chicago 2014, Various User Groups	<ul style="list-style-type: none"> • Why Spark is the Next Top (Compute) Model
LambdaJam Chicago 2014	<ul style="list-style-type: none"> • Reactive Design: A Critique of Current Techniques • Spark Tutorial
React London 2014, LambdaJam Chicago 2014 and YOW! LambdaJam 2014	<ul style="list-style-type: none"> • Reactive Design: A Critique of Current Techniques (video)
CodeMesh 2013	<ul style="list-style-type: none"> • What's Ahead for Big Data (video)
GOTO Aarhus 2013	<ul style="list-style-type: none"> • From Big Data to Big Information (video)
LambdaJam 2013	<ul style="list-style-type: none"> • Copious Data: the "Killer App" for Functional Programming
GOTOChicago 2013	<ul style="list-style-type: none"> • What's Ahead for Big Data (video) • The Seductions of Scala (Tutorial)
Big Data Techcon Boston 2013	<ul style="list-style-type: none"> • Beyond MapReduce • Scalding for Hadoop • Machine Learning Crash Course (Tutorial) • Hive for Hadoop Data Warehousing (Tutorial)
TechMesh London 2012	<ul style="list-style-type: none"> • Beyond MapReduce • The Seductions of Scala (Tutorial)
StrangeLoop 2012	Workshop on Scalding

Publications, Speaking, and Teaching Engagements (indicates PDF)

Strata Conferences 2012 & 2013, Santa Clara and NYC	<ul style="list-style-type: none"> Hive for Hadoop Data Warehousing (Tutorial)
QCon NYC 2012	MapReduce and Its Discontents
WindyCityDB 2012	Programming Hive Tutorial
Northeast Scala Symposium 2012	Why Big Data Needs to Be Functional
FREECO Workshop, Onward 2011	Co-organizer.
CME Technology Conference 2011	Keynote: Heresies and Dogmas in Software Development
StrangeLoop 2011	<ul style="list-style-type: none"> Heresies and Dogmas in Software Development Moderator: Programming Languages Panel.
Agile 2011	<ul style="list-style-type: none"> How Functional Programming Changes Developer Practices "Stage" Co-producer, <i>Development Languages, Practices, and Techniques</i>.
OSCON 2011	<ul style="list-style-type: none"> Become a Better Developer with Functional Programming (1/2 day tutorial) Committee member: OSCON Java
Pragmatics of Industrial Software Development	COMP 388-003, 488-00, Fall 2010, Loyola University, Chicago.
OSCON 2010	<ul style="list-style-type: none"> The Seductions of Scala (1/2 day tutorial) Co-organizer: Scala Summit (1-day of Scala talks)
Commercial Users of Functional Programming 2010	Organizing committee
Erlang Factory 2010	Scala for Erlang Programmers
StrangeLoop 2010	<ul style="list-style-type: none"> The Seductions of Scala Scalable Concurrent Applications with Akka and Scala
StrangeLoop 2009	<ul style="list-style-type: none"> Better Ruby through Functional Programming Polyglot and Polyparadigm Programming for Better Agility
ICSE 2007	Aspect Oriented Design for Java, AspectJ, and Ruby (full day tutorial)
OOPSLA 2007	Aspect Oriented Design for Java and AspectJ (1/2 day tutorial)
Aspect-Oriented Software Development Conference 2006 - 2008	<ul style="list-style-type: none"> Aquarium: AOP for Ruby (2008) An Aspect-Oriented Perspective on Object-Oriented Design (2007) The Challenges of Writing Reusable and Portable Aspects in AspectJ: Lessons from Contract4J (2006) Contract4J for Design by Contract in Java: Design Pattern-Like Protocols and Aspect Interfaces (2006) Aspect Oriented Design for Java, AspectJ, and Ruby (1/2 and full-day tutorials, 2006-2007)
RubyConf 2008	Better Ruby Through Functional Programming (video)
QCon San Francisco 2008 - 2009	<ul style="list-style-type: none"> Radical Simplification Through Polyglot and Poly-paradigm Programming (video, slides - 2008) The Seductions of Scala (full day tutorial - 2009)
JavaOne 2009	Don't Do This! How Not to Write Java Software

Publications, Speaking, and Teaching Engagements (indicates PDF)

Agile 2007 - 2008	<ul style="list-style-type: none"> • Ruby's Secret Sauce: Metaprogramming (1/2 day tutorial - 2007) • Clean Systems: Clean Code at the Architecture Level (2008) • The Seductions of Scala (2009) • Acceptance Testing Java Applications with Cucumber, RSpec, and JRuby (2009)
SD West 2007 - 2009	<ul style="list-style-type: none"> • The Seductions of Scala (Tutorial - shorter version here , 2009) • Better Ruby Through Functional Programming (2009) • Polyglot and Poly-Paradigm Programming (2008) • Aspect-Oriented Programming in Ruby (2008) • Aspect-Oriented Design and Programming in Ruby (2007)
SD Best Practices 2008	Principles of Ruby Application Design (1/2 day tutorial)
Architecture and Design World 2006 - 2008	<ul style="list-style-type: none"> • Ruby Application Design (2008) • Aspect-Oriented Design in Ruby (2007) • Aspects in Dynamic Languages (2006) • Architecture Best Practices for Ruby Applications in a Java World (2006)
Chicago ACM	Polyglot and Poly-paradigm Programming (March 2010)
WindyCityRails 2009	(Son of) Better Ruby Through Functional Programming (video , slides)
Chicago Polyglot Programmers Group	<ul style="list-style-type: none"> • Polyglot and Poly-paradigm Programming (May 2008) • The Seductions of Scala (Oct 2008)
Chicago Ruby Users Group	Aquarium: AOP for Ruby (Oct. 2007)
Chicago Java Users Group	<ul style="list-style-type: none"> • Aspect-Oriented Programming and Design for Java and AspectJ (Oct. & Dec. 2007) • The Seductions of Scala (Dec. 2008)
DePaul Univ. Computer Science Group, Oct. 2007	AOP in Academia and Industry
developerWorks Live 2003	Model-Driven Development of J2EE Applications - A Practical Guide
JBossTwo Conf. 2003	
IBM's developerWorks	<ul style="list-style-type: none"> • AOP@Work: Component Design with Contract4J
oreillynet.com	<ul style="list-style-type: none"> • Cat Fight in a Pet Store: J2EE vs. .NET • A Pet Market with Flash
polyglotprogramming.com	<ul style="list-style-type: none"> • Contract4J: Design by Contract for Java
aspectprogramming.com	<ul style="list-style-type: none"> • Aquarium: AOP for Ruby
aquarium.rubyforge.org	<ul style="list-style-type: none"> • Use Cases as Aspects

Education

Ph.D., Theoretical Physics University of Washington 1989	<ul style="list-style-type: none">• Studied rare decay processes in atoms and nuclei.• Developed numerical models of these processes using object-based methods and VAX FORTRAN.
MS, Theoretical Physics University of Virginia 1985	<ul style="list-style-type: none">• Studied the structure of protons and neutrons in atomic nuclei.
BS, Physics University of Virginia 1982	<ul style="list-style-type: none">• Minor in Mathematics.