



# Rod Hilton

STAFF SOFTWARE ENGINEER, BACKEND & DISTRIBUTED SYSTEMS

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Pragmatism · Compassion · Accountability · Craftsmanship

## Skills

- Accomplished** Java, Scala, Git, Groovy, Ruby
- Advanced** Python, Spring, ANTLR, HTML/CSS, LaTeX, REST, Kafka, Mathematica, JavaScript, Grails, AWS, Go, MySQL, SOAP, Terraform
- Novice** Redis, AngularJS, TypeScript, Thrift, Kubernetes, PostgreSQL, Hadoop, Oracle, SBT, memcached, Jenkins, hazelcast
- Interested** Kotlin, ElasticSearch, Spark, Cassandra, GCP, Rust, F#

## Experience

### Twilio

Remote

STAFF SOFTWARE ENGINEER - Compute Interfaces

2023-Present

- Utilized Go, ANTLR, Git, OpenAI, AWS, TypeScript, Docker, Kafka, and Terraform.
- Developed [Compute API](#) to provide REST interface to largest users of realtime customer segmentation platform handling 400k requests/sec.
- Enabled [Generative AI](#) assistant by migrating from legacy free-form JSON-based specification to precise grammar-based definition.
- Designed [custom query language](#) to achieve GUI wizard fidelity allowing API reading/writing of compute definitions for 1100+ enterprise customers.
- Refined design specifications through multiple rounds of stakeholder collaboration and drove consensus between groups across business unit.
- Implemented ANTLR-based parser & transpiler to convert between validity-checked query language and proprietary internal data representation.
- Mentored 2 junior engineers and led technical direction for architectural decisions and operational standards.

### Epic Games

Remote

TECH LEAD, BACKEND ENGINEERING - Online Social

2021-2023

- Utilized Java, Spring, Git, REST, AWS, Redis, Terraform, Kubernetes, and Docker.
- Developed Data Orchestrator Service responsible for coordinating user record sanitization events and compliance auditing over 50 backend systems.
- Coordinated cross-team initiative to anonymize over 900m accounts to [ensure data retention compliance](#) among hundreds of independent services.
- Operated [social game services](#) for friends, messaging, party-forming, banning, chatting, searching, and group-finding, serving 3m requests/min.
- Architected backend service solution and designed public-facing API for [Postparty](#) video clip sharing product, storing over 1m uploads/day.
- Managed work intake and priority for 10 contract-based engineering staff and supported their development within organization.
- Developed Interactions Tracking Service for querying interactions [awards-based campaigns](#) in games supporting 11m CCUs.
- Created highly-available asynchronous processor of user-created media with access control utilized by [UEFN](#) to build over 1.1m projects

### Twitter

Remote

STAFF SOFTWARE ENGINEER - Core Tweet Service & Developer Platform

2017-2021

- Utilized Scala, Java, Git, Kafka, ANTLR, HTML/CSS, MySQL, REST, Thrift, Hadoop, and Python.
- Operated Twitter's Core Tweet Service, storing and serving all of the tweets and servicing up to 30m requests/sec with 99.97% success rate SLA.
- Developed and launched features such as [Twitter Communities](#), [Conversation Controls](#), and [Public Interest Interstitial](#).
- Led Privacy and Data Protection initiatives to annotate cross-service PII, ensure GDPR compliance via mass [under-13 user erasure](#) of 17m accounts.
- Developed [PowerTrack](#) and [Statuses/Filter](#), complex real-time filter engine processing Twitter's 350k tweets/minute data stream.
- Created new filter operators for Machine-Learning and Natural Language annotations used to [predict COVID-19 outbreaks](#) with 81.6% precision.
- Created rule debugging tool for customer support engineers to assist with isolating issues with complex rule query language.
- Improved company interview process by ensuring consistency among interviewing teams and building new assignment-based coding challenges.

### Spectrum (formerly Time Warner Cable)

Remote

PRINCIPAL ENGINEER - Core Services & Customer Portals

2011-2017

- Utilized Scala, Groovy, Grails, Java, Spring, Git, Ruby, AngularJS, JavaScript, PostgreSQL, REST, SOAP, SBT, memcached, Jenkins, and HTML/CSS.
- Developed high-availability middleware platform to reduce internal access friction to heterogenous backend services handling over 1k requests/sec.
- Led rewrite of [residential customer portal](#), new version a 2014 [award finalist in 4-categories](#) with +10 point improvement in customer satisfaction.
- Created [commercial primary care portal](#) application handling 7m logins/month and 45% improvement in registration conversion rate.
- Built bill reporting system aggregating financial data across 3 legacy backends to provide unified REST interface & abstract backend variation.
- Created distributed tracing system to facilitate error diagnosis and resolution, reduced customer calls by 50% saving an estimated \$4m/year.
- Designed and implemented successful team branching strategy and release process & release notes generator saving hours of manual work per week.

### Broadcom (formerly Rally Software)

Boulder, CO

TECHNICAL LEAD - Agile Lifecycle Management Product

2008-2011

- Utilized Java, Servlets, JSP, Git, Spring, Ruby, HTML/CSS, Oracle, Tomcat, JavaScript, ExtJS, EclipseLink, and Android.
- Developed SaaS [Rally ALM](#) project management software used by 300+ enterprises to adopt agile development in distributed environments.
- Led test-driven data migration effort to migrate customers out of legacy product, deleting over 20k LoC and reducing development effort by 50%.
- Refactored application to remove container test dependency, simplify deployment infrastructure, and use standard annotations for domain objects.
- Created [Rallydroid](#), an Open Source Rally client for Android operating system.

## **Perforce** (formerly OpenLogic)

Denver, CO

SENIOR SOFTWARE ENGINEER - Open Source Management Software

2007-2008

- Utilized Ruby, Rails, JavaScript, AJAX, HTML/CSS, MySQL, Java, JSP, Servlets, JSF, Spring, Groovy, Hibernate, PostgreSQL, and Geronimo.
- Developed [OLEX](#) application capable of managing open source software requisitions and installations across clusters of thousands of machines.
- Created RESTful web services used by [Open Source Census](#) initiative aggregating thousands of data scans into warehouse data schema.
- Built open source [OSS Discovery 2.0](#) scanner utilizing fingerprints and heuristics to scan for OSS and report to Open Source Census.
- Developed J2EE software system that allowed remotely administered open source software installation and configuration.
- Received Most Valuable Player Award - January 2008

## **Acxiom** (formerly InsightAmerica)

Denver, CO

SENIOR SOFTWARE DEVELOPER - Driving Records Aggregation

2004-2007

- Utilized Java, CPIC, SQL Server, SOAP, JavaScript, ColdFusion, JBoss, and HTML/CSS.
- Developed e-DriverData system for processing and reporting driver records across 44 states, each using different protocols and technologies.
- Refactored multi-dependency legacy enterprise application to improve performance by 600% and greatly improve system stability.
- Architected data access service used by 10+ applications using a Java/ColdFusion bridge library, improving system performance and code reuse.
- Led developer workshops on topics including thread safety, computational arithmetic, and regular expressions.
- Received Special Recognition Award for Outstanding Performance - September, 2006

## **Truth-N-Beauty Software**

Rochester, NY

LEAD SOFTWARE DEVELOPER - Educational Interactives

2002-2004

- Utilized Java, Applets, AWT, ASP, VBScript, Flash, and ActionScript.
- Developed 40+ educational physics simulations allowing students to manipulate experimental parameters in virtual environment.
- Led multi-component projects, organizing and assigning work as well as managing deadlines and releases.
- Created common product framework with customized Java classloader that detected system capabilities and adjusted simulation features.
- Built AWT-based graphical toolkit to provide for company-wide UI consistency and improved development time.
- Developed company web site and portfolio sites enabling customers to review work-in-progress and provide feedback to streamline revision process.

# Education

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## University of Colorado

Denver, CO

M.S., COMPUTER SCIENCE

- Utilized Java, Scala, Python, Groovy, Ruby, LaTeX, and Mathematica.
- Specialization in Machine Learning, Theory, and Algorithms
- Coursework: Graduate Algorithms, Theory of Distributed Computing, Theory of Automata, Computer Security, Artificial Intelligence, Computational Complexity, Applied Graph Theory, Machine Learning

## Regis University

Denver, CO

M.S., SOFTWARE ENGINEERING

- Utilized Java, C#, LaTeX, and UML.
- Thesis: [Quantitatively Evaluating Test-Driven Development by Applying Object-Oriented Quality Metrics to Open Source Projects](#)
- Coursework: Information Systems Concepts, Information Systems Architecture, Object-Oriented Software Engineering, Software Requirements and Processes, Software Design, Enterprise Java Programming with Servlets/JSPs, Advanced Enterprise Java Programming with EJBs.

## University of Rochester

Rochester, NY

B.S., COMPUTER SCIENCE

- Utilized Java, C, C++, Assembly, Scheme, Python, JavaScript, LaTeX, Flash, and Maya.
- Focus on Systems
- Coursework: Data Structures, Computation and Formal Systems, Computer Networks, Operating Systems, Language Design and Implementation, Parallel and Distributed Systems, Cryptography, Computer Organization, Computer Models and Limitations, Design and Analysis of Efficient Algorithms

# Certifications

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- 2009 **Certified ScrumMaster**,
- 2008 **Sun Certified Java Developer**, J2SE 5.0
- 2006 **Sun Certified Web Component Developer**, J2EE 1.4
- 2005 **Sun Certified Java Programmer**, J2SE 5.0

# Publications

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## 97 Things Every Java Programmer Should Know by Various Authors

[O'Reilly](#)

CO-AUTHOR - Book

2020

- Collection of short essays full of expert advice and best practices from Java leaders and practitioners in the field

## Predicting Code Hotspots in OSS from OO Metrics Using Machine Learning by Rod Hilton

[IJSEKE](#)

AUTHOR - Journal Article

2018

- Paper demonstrating the use of ML to accurately predict areas of Open Source projects needing the most revision based on Object-Oriented metrics

## Java Performance, 2nd Edition by Scott Oaks

[O'Reilly](#)

TECHNICAL REVIEWER - Book

2020

- Guide to understanding JVM internals, JIT optimization, garbage collection algorithms, target platform differences, and how to tune applications

## Modern Systems Programming with Scala Native by Richard Whaling

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2020

- Introduction to utilizing Scala Native for low-level systems and firmware development using functional programming techniques

## Programming Kotlin by Venkat Subramaniam

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2019

- Introduction to the Kotlin programming language, how to use it for OOP as well as FP programming, and major differences from Java

## Release It! 2nd Edition by Michael Nygard

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2018

- Design patterns for developing scalable, production-ready distributed systems in a robust, failure-resistant manner

## A Common-Sense Guide to Data Structures and Algorithms by Jay Wengrow

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2017

- Entry-level text introducing undergraduate-level data structures, algorithms, and complexity analysis using Python

## Test-Driving JavaScript Applications by Venkat Subramaniam

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2016

- Guide for developing JavaScript using a Test-Driven Development approach, covering libraries and techniques to improve testability of JS code

## Reactive Programming with RxJS by Sergi Mansilla

[Pragmatic](#)

TECHNICAL REVIEWER - Book

2016

- Tutorial on using Reactive Programming techniques within front-end JavaScript programming using the RxJS library

## Agile Web Development with Rails 5 by Sam Ruby

TECHNICAL REVIEWER - Book

- Updated edition of "the skateboard book" focusing on rapid development of web applications using Ruby on Rails

[Pragmatic](#)

2016

## The Way of the Web Tester by Jonathan Rasmusson

TECHNICAL REVIEWER - Book

- Beginner's guide to automated testing for frontends, stressing UI and API testing techniques and tools

[Pragmatic](#)

2016

## Pragmatic Unit Testing in Java 8 with JUnit by Jeff Langr

TECHNICAL REVIEWER - Book

- Introduction to unit testing techniques in Java 8 with step-by-step guides for Eclipse, IntelliJ IDEA, and NetBeans to utilize modern JUnit

[Pragmatic](#)

2015

## Your Code as a Crime Scene by Adam Tornhill

TECHNICAL REVIEWER - Book

- Guide to using forensic analysis techniques to discover codebase hotspots for issues and defects to optimize refactoring direction

[Pragmatic](#)

2015

## CoffeeScript: Accelerated JavaScript Development, Second Edition by Trevor Burnham

TECHNICAL REVIEWER - Book

- A comprehensive guide to CoffeeScript, the elegant JavaScript simplifier, with updated features and tools for modern web development.

[Pragmatic](#)

2015

## Functional Programming in Scala by Paul Chiusano and Runar Bjarnason

TECHNICAL REVIEWER - Book

- Original edition of "the red book" - Scala text with focus on purely functional programming style

[Manning](#)

2014

## Neo4j in Action by Jonas Partner, Aleksa Vukotic, and Nicki Watt

TECHNICAL REVIEWER - Book

- A guide for developers and architects on using Neo4j, a high-performance graph database, with a focus on modeling and querying.

[Manning](#)

2014

## Gradle, Beyond the Basics by Tim Berglund

TECHNICAL REVIEWER - Book

- An advanced guide to mastering Gradle, covering file operations, custom plugins, build hooks, and dependency management with code examples.

[O'Reilly](#)

2013

## Functional Programming Patterns in Scala and Clojure by Michael Bevilacqua-Linn

TECHNICAL REVIEWER - Book

- Exploring advanced functional patterns in Scala and Clojure, emphasizing Memoization and Tail Recursion for efficient problem-solving.

[Pragmatic](#)

2013

## Projects

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### JaSoMe (Java Source Metrics)

MAINTAINER

- Zero-compilation Object Oriented Metrics analyzer for Java code, 13 forks on GitHub

[GitHub](#)

2018

### console\_table

MAINTAINER

- Ruby gem for formatting and printing tabular data in commandline scripts, over 100,000 downloads

[rubygems.org](#)

2015

### Geneticrypt

MAINTAINER

- Extensible framework with CLI and GUI for using genetic algorithms to decrypt messages encrypted with a substitution cipher

[GitHub](#)

2012

### Gobbles

MAINTAINER

- Snake game clone written in Java

[GitHub](#)

2014

### Rectangle Visibility

MAINTAINER

- Uses Genetic Algorithms to search for solutions to Rectangle Visibility problem

[GitHub](#)

2013

### Trajectories

MAINTAINER

- A Scala application that uses Linguistic Geometry concepts to quickly compute trajectory positions for chess boards

[GitHub](#)

2012