

# Christopher Kornher

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## Profile

Over twenty years Software Development and Architecture in Swift, SwiftUI, Objective C, C/C++, Go, Python, Ruby, and Java on iOS, Android, MacOS, Linux, and Windows systems. Developed mobile applications (iOS, Android), desktop applications (SwiftUI, Cocoa, QT, Swing), and n-tier applications (WebSphere, JBoss, Rails). System programming (Go, OS X, Linux, Windows), and device management (Linux, Java). Extensive experience with embedded, high-performance, high-reliability systems. Experience with many disciplines and technologies, including architecture, OO and relational analysis, web, wireless, DB, XML, 2D & 3D graphics, GUI and security, in a wide range of roles and industries. Worked with Scrum, Kanban, and Waterfall processes.

## Detailed Experience Breakdown

### Languages, Formats

Swift	8 years	Swift Frameworks, Protocol Oriented Programming. Swift1.x, 2.x, 3.x, 4.x, 5.x
Objective-C	7 years	Cocoa, Cocoa Touch MacOS 10.3 - 13.X, iOS 2-16
C++ / C	>10 Years	MacOS, Linux, Unix, Windows
Go	> 1 year	Modules, FoundationDB, GRPC
Ruby	2 years	Rails, RubyMine
Python	3 years	Wing IDE, PyCharm, Python3.12, pandas, numpy, pydantic, types, fastapi
Java	9 years	IDEA, Eclipse
SQL	6 years	Oracle, Postgres, SQLite, MySQL, TOAD, DataGrip
PL/SQL	3 years	TOAD, SQL Navigator, PL/pgSQL
JSON	8 years	Restful Web Service and Client design and implementation
XML	4 years	XML Spy, Java, XSLT, Cocoa, gSOAP, Oxygen

### Operating System APIs

MacOS	7 years	Lead developer on Microsoft Office App & large internal project at Apple
iOS	10 years	Enterprise and consumer applications and components, eCommerce, Apple retail, healthcare, AR, photo, scientific, plant control, IOT, ski resort, sports.
Unix/Linux	4 years	Linux, Solaris, AIX
Windows	2 years	

### Database

Oracle	4 years	Java & Ruby, DB Design, Coding, (SQL, MySQL) Tuning, ERwin
Foundation DB	> 1 year	Go, High throughput. Architecture.
Postgres	1 year	Go, DB design, Stored procedures
MySQL	1 year	Ruby Rails, Design, Coding
SQLite	5 years	Large Scale, Mobile
GraphQL	< 1 year	Swift client-side
CoreData	3 years	

### Technologies

SwiftUI	2 years	Architecture, Production Applications
Version Control	>15 Years	Git, Mercurial, Subversion, CVS, Perforce, Surround and numerous others
UML	10 years	Astah, Sparx EA, MagicDraw, VPUML, Together
Agile	> 7 Years	Scrum, Kanban, Jira, YouTrack, Pivotal Tracker
IOT	1 Year	HomeKit, cloud platforms, low power
Reactive Programming	3 years	RXSwift, Combine, ReactiveSwift, Reactive Objective-C

## Experience

**12/2020 – 12/2022 Senior Engineer**

**Lab49, New York, NY (Remote)**

Development of a high profile 100% SwiftUI banking application for a major financial institution. Developed SwiftUI components. Integrated with UIKit for navigation and other functions that were not available in SwiftUI at the time. Extensive use of Combine. Protocol oriented programming.

**6/2019 – 9/2020 : PEX, BOULDER CO**

**Senior Engineer (Remote)**

Architected and developed a management system for very large clusters of > 1000 machines in Go and FoundationDB. Designed and developed command-line tools to manage the system. Architected fast-start system. GRPC, Docker, Kubernetes, Google Cloud, Azure.

**12/2018 – 5/2019 : CIRRUS MD, DENVER CO**

**Senior Mobile Engineer**

Lead iOS developer for a telemedicine application. Swift 5. Travis, Pivotal Tracker, WebSockets, Redux. Updated legacy codebase and designed and implemented new features. Fixed critical issues. Explored new technologies including GraphQL. Protocol oriented programming

**11/2017 – 9/2018: MAJOR LEAGUE BASEBALL, BOULDER, CO**

**Senior Mobile Engineer**

iOS Development on the most popular sports app in the world on iOS in Swift and Objective-C. Modernizing a codebase that still has some 10 year old iOS code. GraphQL. Meeting tight production deadlines. Protocol oriented programming. RXSwift.

**08/2017 – 11/2017: CONSULTING AT DAVITA, DENVER, CO**

**iOS Developer**

Development and architecture of medical applications in Swift for iOS. Mentoring less experienced team members. Refactoring, simplifying, and increasing reliability of critical applications.

**01/2017 – 08/2017: CONSULTING AT ALLEGION, GOLDEN, CO**

**iOS Developer**

IOT management applications in iOS. HomeKit, PromiseKit, Core Bluetooth. Restored HomeKit functionality that had been broken by a previous rewrite. Refactored HomeKit code to handle all protocol versions, dramatically reducing code size and improving performance and reliability. Protocol oriented programming. Developed unit tests for multiple HomeKit protocol versions. Refactored UI code to eliminate serious application flow issues. Developed support code for the next generation of the application using PromiseKit in Swift. HomeKit performance analysis using Python/Pandas/Jupyter. Protocol oriented programming

**07/2016 – PRESENT: PERSONAL PROJECT**

**iOS / macOS / Linux Architect / Developer**

Architecting and developing a next-generation services system for the realtime web and the Internet of Things in 100% Swift for Mac, iOS and Linux. Developing a new technology to address the limitations of Restful Services for and complex, realtime distributed and web-based systems. Emphasis on scaling from mobile to large data center deployments. Designed and coded an actor system for Swift. Swift Concurrency, SwiftUI, Swift Package Manager, PostgreSQL, Websockets, CoreData, Docker, Protocol Oriented Programming.

**04/2016 – 07/2016: CONSULTING AT CARDINAL PEAK, LAFAYETTE, CO**

**Senior iOS Developer**

Swift and Objective-C. Internet of things applications. UI design and development for customer-facing interfaces to high-end appliances. Extending sophisticated multi-level promise-based code. Debugging and solving complex networking issues for registering IoT devices. Re-writing IoT systems code to support new interfaces. Mentoring Objective-C programmers transitioning to Swift.

**05/2015 – 04/2016: SHOPATHOME, GREENWOOD VILLAGE CO**

**Lead iOS developer**

Re-architect and migrate an iOS application to 100% Swift. Developing generic components to greatly reduce code size. Custom UI component creation in Swift. Using Swift language features to improve reliability, performance and the developer experience. Utilizing 3rd party frameworks, including Alamofire. Protocol Oriented Programming. Location services and micro-location services (beacons).

**11/2014 – 4/2015: FLIXTREME, BOULDER CO**

**Chief Technology Officer**

Responsible for all architecture and technical direction. Wrote the 1st shipping version of Flixtreme (iOS), a social app for action sports enthusiasts on an aggressive schedule. Developed unique UI components for dynamic forms. Extensive Facebook integration. Location services used in realtime to guide users to events.

**7/2014 – 11/2014: USEFUL SYSTEMS, INC, BOULDER CO**

**Lead iOS Engineer**

Architected and created a new application in Swift. Developed a promise-based RESTful web service client library. Created a Swift code generator in Ruby to create “native” Swift wire data classes. Location services and mapping.

**4/2014 – 4/2014: CONSULTING AT SPIES AND ASSASSINS, NY, NY**

**Senior iOS Developer**

Extensively updating a iOS photo application on a tight schedule. Tasks included adding photo editing, Auto Layout, animations, updating to iOS 7.x UI. The entire project was completed in 3 weeks.

**10/2013 – 4/2014: CONSULTING AT PCS FERGUSON, FREDERICK, CO**

**Lead iOS Developer**

Architected and developed an oil well control app for iPhone. Storyboards, custom UICollectionViews, Core Bluetooth, TCP, Modbus.

**4/2013 – 11/2013: CONSULTING AT RAINDYNAMICS, BOULDER CO**

**Lead iOS Developer**

Architected and developed new Android and iPad applications to display weather, instrument and avionics data in real-time. Fully custom core-graphics-based realtime flight displays. Development of Java server software to control instruments, collect data and broadcast to iPads in realtime. Location services and realtime map integration.

**11/2012 – 6/2013: CONSULTING AT MWH GLOBAL, BROOMFIELD, CO**

**Senior iOS Developer**

iOS iPad application development. Developed peer discovery and communication system using Bonjour to replace GameKit system. Custom UICollectionView, UITableView development.

**9/2011 – 2/2012: RTP, AN ACTIVE NETWORK COMPANY, AVON, CO**

**Senior Mobile Engineer**

UI Design and development of iOS mobile apps. Web services, mapping/GPS, augmented reality, JSON, XML, push notifications. Location services, realtime sensor integration. Our app, LivePass won first place in InformationWeek's IT category:

<http://www.activenetwork.com/blog/active-network-ranks-29-2012-informationweek-500-wins-place-information-technology-category/>

**6/2010 – 7/2011: CONSULTING AT APPLE, CUPERTINO, CA**

**Senior iOS Developer**

Cocoa and Cocoa Touch design and development. Architected and implemented the MacOS client-server application that lays-out the retail product displays at all Apple retail stores and iOS in-store applications as part of the “smart sign” project. The applications were designed, developed and successfully released worldwide in 6 months.

**6/2009 – 6/2010: CONSULTING AT EBAY, CAMPBELL, CA**

**Lead Software Engineer**

Lead developer for high throughput classification engine in Python. Data Mining, SQLite.

**4/2008 – 3/2009 : CONSULTING AT MICROSOFT, MOUNTAIN VIEW, CA**

**Senior MacOS Developer**

Architect and lead developer on Microsoft's first Cocoa product: Microsoft Document Connection for Mac (shipped in latest MS Office service pack 07/17/2009).

**1/2008 – 4/2008: CONSULTING AT APPLE, INC., CUPERTINO, CA**

**Senior MacOS Developer**

Objective C Cocoa development for Tiger and Leopard. Created a small Leopard-Only, internal application from original requirement through release. Extensive use of new Leopard features: Objective-C 2.0, NSOperation, GC, Scripting Bridge, CoreData.

**7/2007 – 12/2007: CONSULTING AT LEAPFROG, EMERYVILLE, CA**

**Senior MacOS Developer**

QT architecture and development. Designed and coded an Operation-Queue framework for QT. UML,QT multithreading, QT on MacOS.

**4/2007 – 12/2007: CONSULTING AT SOUNDFLAVOR, SAN FRANCISCO, CA**

**Senior MacOS Developer**

Objective C Cocoa development for Leopard. Re-architected the problematic application to fix threading, core data, xml and animation problems. Architecture, coding, project management. Extensive use of new Leopard features: Objective-C 2.0, NSOperation, GC.

**10/2006– 4/2007: CONSULTING AT FABRIC7 SYSTEMS, MOUNTAIN VIEW, CA**

**Senior Software Engineer**

Designed and developed the next generation management GUI in Adobe Flex. Designed a low cost platform/enterprise management system in UML. UI design, Flex and Flex Builder. Evaluated Spring. Re-architected system for performance.

**8/2006 – 2/2007: CONSULTING AT PAYBYTOUCH, SAN FRANCISCO, CA**

**Senior Software Engineer**

Specification, design and development of a Python/Jython framework for fully automating the installation and configuration of WebSphere and Enterprise Service Bus components.

**6/2006 – 8/2006: CONSULTING AT LOOKSMART, SAN FRANCISCO, CA**

**Senior Software Engineer**

Ruby on Rails development.

**3/2006 – 5/2006: CONSULTING AT KAVAM, PALO ALTO, CA**

**Senior Software Engineer**

Design and development of multi-threaded high performance server systems in C++ on Linux. Most of the software was developed initially on MacOS.

**7/2004 – 3/2006: CONSULTING AT FABRIC7 SYSTEMS, MOUNTAIN VIEW, CA**

**Senior Software Engineer**

Design and development of Enterprise Management Systems. Architecture, design and implementation of performance critical management systems in Java. JBoss, JMX, Corba, CIMOM/MOF. Metadata-driven development including XML schema design and implementation, XSLT, custom code generators, Ant scripts. Java/C++ Corba development. Design and implementation of custom rules-based alarm system in Java/SQL. Development of Swing components. Python, Ruby, Ruby On Rails. UI Design.

**6/2002 – 6/2004: CONSULTING AT APPLIED BIOSYSTEMS, FOSTER CITY, CA**

**Senior Software Engineer**

Specification, architecture (UML) and development of multiple biotechnology applications. requirements gathering, architecture, design and implementation of performance critical subsystems in Java/Swing and Win32 C++. XML schema design and implementation. Evaluation of O/R Mapping tools: JDO, Hibernate, TopLink. Python, JUnit, Cruise Control. Extensive Swing GUI design and development.

**8/2001 – 6/2002: PRODUCT DEVELOPMENT AT MODEL LOGIC, SAN FRANCISCO, CA**

#### **Chief Architect**

Specification, architecture (UML) and development of ModelBeans, a distributed enterprise system product suite in Java, & C, utilizing numerous J2EE technologies, including JSP, XML, EJB, JDBC, JAAS, JTA, JMS, JavaBeans. Other technologies include JINI, Swing, Java2D, and PL/SQL. The system is modeled in UML using TogetherJ.

#### **11/2000 – 8/2001: CONSULTING AT SRI INTERNATIONAL, MENLO PARK, CA**

##### **Senior Software Engineer**

Project lead and architect. OOAD (UML) and development of next-generation wireless systems in Java and Linux/C/C++. Created high-reliability, high performance networking protocols for wireless systems. Embedded soft real time networking software design and development in Linux. OOAD and development of high-performance extensible system management frameworks with Java/Swing. XML Schema and DTD creation and supervision of XML parser development. Miscellaneous tasks involving SNMP, XML and the Java CLDC/MIDP spec. UI Design.

#### **2/2000 – 11/2000: CONSULTING AT KIRACOM, SAN FRANCISCO, CA**

##### **Senior Software Engineer**

Co-Architected Oracle/Java based large-scale web email system. Web Email development in Java with JavaMail. Modified the Locomotive application server for improved reliability and database performance. PL/SQL development and database tuning. Perl scripting to support production system. Architecting the next generation system, including extensive data modeling for Oracle in ERwin and UML OOAD in Together. Developed on Solaris and NT.

#### **3/1999 – 2/2000: CONSULTING AT ORGANIC, SAN FRANCISCO, CA**

##### **Senior Software Engineer**

E Commerce application development in ATG Dynamo, Java, PL/SQL, Perl, including DB architecture (ERwin) and tuning. UML OOAD in Rational Rose. Developed Blowfish encryption system. Optimized ATG product search. Perl database coding. Developed on Solaris and NT.

#### **2/1998 – 3/1999: CONSULTING AT SRI INTERNATIONAL, MENLO PARK, CA**

##### **Senior Software Engineer**

Specification, architecture (UML) and development of the Tactical Logistics Information System component of InCON Urban Warrior software for the U.S. Marine Corps. Architected (UML) the security layer for InCON. Responsible for specification, architecture, Java implementation and testing. Managed and mentored other developers. Java, Oracle 8, Perl, JDBC, Swing, Java 3D, CORBA, UML architecture. Realtime location and mapping. Vehicle telematics. Developed on Solaris and NT. UI Design.

#### **11/1997 – 2/1998: CONSULTING AT LOCKHEED MARTIN, PALO ALTO, CA**

##### **Senior Software Engineer**

Participating in design and development of the Simulation Based Design System for DARPA. UML design and development of the distributed server management and distributed user desktop subsystems. High level architecture, CORBA IDL, Java development, Swing on Windows 95, NT and Solaris. Developed on Solaris.

#### **2/1997 – 11/1997: CONSULTING AT DIGITAL EQUIPMENT, SAN MATEO, CA**

##### **Senior Software Engineer**

OO analysis, architecture, design (UML, Rumbaugh), and development of the data system of a high performance Internet commerce server in Java. The system could handle >1k transactions/second with SQL or Object databases. Utilized JDBC, PSE, RMI, BEANS. Developed on Digital Unix and NT.

#### **4/1996 – 2/1997: CONSULTING AT KAISER PERMANENTE, OAKLAND, CA**

##### **Senior Software Engineer**

Development of a Web-based clinical information system in Java. The system served Kaiser's doctors through its intranet and its network doctors through the Internet. Perl CGI. Developed system in Java, utilizing CORBA (VisiBroker, ORBIX), AWT, JDBC, MQ Series. UI Design.

Information on previous positions upon request

## **Education**

University of California, San Diego, twelve units short of a BS in Physics