

**Randall Dow**

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PhD work Analytical Chemistry, Oregon State University, Corvallis, Oregon  
BS Chemistry, University of Idaho, Moscow, Idaho

## Profile

I have extensive experience in Swift, ObjC, C/C++, Python, C#, JavaScript, Java, Perl, Lisp, and Assembler on these operating systems: Linux, macOS, iOS, UNIX (BSD, etc.), Web, Embedded Systems, and Windows.

I am an experienced, motivated software engineer, architect, and consultant with proven success in multiple large and small enterprises. Current work is in the application of networking and cryptography in security applications.

- Excellent communication skills
- Self-starter, independent, yet team-oriented
- Native language is English, fluent in German

## Skills

- IT Architecture: software, networking, systems, applications, storage
- Designs, specifications, requirements analysis, testing requirements, testability
- Software and systems life cycles
- Technologies: Agile, networking, client-server, middleware, REST, databases, backup, firewalls, system management, system monitoring, security and cryptography, storage
- High reliability: 24x7, data center operations
- Software distribution: configuration management, automatic installation
  
- Team leadership, project leadership, small company ownership
- Trainer: UNIX and Linux, UNIX kernel, MS-Windows, system administration, applications and programming languages

## Relevant Work Experience

**Truepic Inc**, La Jolla, California

**Senior iOS R&D Engineer (remote)**

6/2021 - present

Architect iOS SDK for camera capture. I primarily concentrated on the security aspects.

Develop the SDK start-up, certificate acquisition and maintenance, timing, URL REST, integrate into a camera application.

Tools: Xcode, XCTest, Swift, Python, ObjC, C/C++, GIT.

**Randix, LLC**, Dallas, Oregon (own company for iOS development)

side project

Develop iOS applications using SwiftUI.

Independent development of consumer iOS applications for the Apple App Store.

**Carrier Onity/Supra**, Salem, Oregon

**Senior Systems Engineer**

8 years

Architect systems and protocols between embedded firmware, mobile apps, and cloud based systems. Design, write, and maintain a Bluetooth-based iOS app.

Technical lead: design and implement application security for low-level serial and TCP communications for hospitality applications. Design and develop hotel guest check-in application. Implement real-estate server applications. Implement inline application gateway to

REST server as Linux embedded system. Implement security and cryptography engineering. Implement efficient protocols for network communication.

Tools: Xcode, Swift, Python, Linux, C#, .NET, SQL Server, SQLite, SVN, GIT.

**RedSide App - Independent Development, iOS**, Munich, Germany 10 months side project  
Synchronize local data with cloud-based services, such as Dropbox and Amazon S3, or private SFTP servers. The data is encrypted locally using AES256 before being transmitted to the off-site backup. Multiple iOS devices and OS X (Linux and Windows planned) computers can synchronize data using the encrypted off-site storage.

A version is available as open source at this link: <https://github.com/randix> The **Redside** application hosted there is a C language, posix-only, functioning *prototype*. It has been used for offsite backups (encrypted) since the end of August 2013. The iOS version is in beta-test. The iOS version is written in Objective-C, and I am converting it to Swift.

**Physik Instrumente**, Karlsruhe, Germany

**HexaPad, Consultant, iOS**

2 months side project

Design and implement a motion control application for PI's Hexapod line of devices. They requested an offer seven weeks before the Hannover Faire in Hannover, Germany. I designed and implemented the application successfully and on-time.

This is the hexapod:

<https://www.pi-usa.us/en/products/6-axis-hexapods-parallel-positioners/>

This is a(n inadequate) demonstration of the app:

<https://www.youtube.com/watch?v=HJIoDFTaSPc>

I finished early and then refactored the code to implement a Hexapod Simulator as well. This uses OpenGL and the device motion sensing hardware.

Tools: Xcode, ObjC

**Software Engineer and Architect - Consultant**

4 years

**Rohde & Schwarz GmbH**, Munich, Germany

Design and develop embedded software for a software-defined radio for secure communication with full Red-Black separation. Optimize TCP/IP algorithms for communications between wired and wireless devices. Develop IP Header Compression for efficient radio transmission. Develop algorithms for optimized TCP, efficient UDP and Multicast.

Tools: Windows, Embedded RTOS, Visual Studio, ClearCase, ClearQuest, DOORS, C++/C, Python, Debuggers.

**Director of Software Engineering**

10 months

**Becker Marine**, Hamburg, Germany

Manager of Software Development, team geographically distributed. Integrated an embedded system router / gateway and developed a cost-optimized router for satellite, UMTS and WiFi communication. Designed and developed the management console and the central routing algorithms. The software was successful, the company failed.

**Network Gateway Architect - Consultant**

7 years

**UniCredit Bank**, Munich, Germany

Design, develop, test, integrate, release and install a network gateway TCP/IP – X.25. This provided the pathway for three large European banks to migrate ATMs from X.25 to TCP/IP. The project saved the banks operating costs of millions of euros.

**Senior Software Engineer**

10 months

**Kenai Systems**, Sacramento, California

Design and develop a network traffic-profiling kernel module (FreeBSD); design and develop a web application for an embedded Network Intrusion Detection System, a dynamic, rules-based

fire-wall device. Develop a Web Services test tool for penetration testing using J2EE and Java Web Services tools.

**Designer and System Administrator - Consultant**

3 years 5 months

**UniCredit Bank**, Munich, Germany

Install and operate Unix-based ATM servers. Integrate, install and operate a Unix-based SWIFT system. Propose, design, implement and install an embedded Linux-based custom router for the ATM network, router gateway between X.25 and TCP-IP networks as well as perform network redirector and load balancing functions.

**Project Leader, Software Design/Architecture - Consultant**

1 year 2 months

**InterFace AG**, Munich, Germany

Design and manage the development of a multi-tier client/server web-based information-publishing system. Lead a nine-person team as designer and lead programmer, taking the product through conception, requirements, design, development, QA, and support to completion, meeting every management milestone.

**CEO and Owner**

8 years - simultaneous with above

**Randix Systems GmbH**, Munich, Germany

Found and operate a five person company developing systems software. Primary personal projects were:

- Design and develop a locking and caching mechanism for UNIX-based Intelligent Net (IN) Service
- Control Processor (SCP) for the mobile telephone industry,
- Hold courses for IN for the major European mobile telecoms,
- Propose concept, design and develop DOS, Windows, UNIX and Novell programs for automated network-based installation and backups (this is today (2021) Symantec's LiveState).
- Design and develop a DOS-based terminal emulator emulating many terminals; the package included file transfer with UNIX systems and UNIX remote printing on the DOS-based PC.

**Senior Kernel and Firmware Developer**

8 years

**Siemens AG**, Munich, Germany

Transfer technology from Sequent to a large German-based computer manufacturer for multi-processor UNIX system; enhance the UNIX kernel, integrate new hardware, NFS, and support, train and mentor development and test groups; implement SMP in UNIX SVR4; write many UNIX device drivers; design and develop the system firmware, integrate new processor, memory, and I/O boards into the BISTs; teach advanced multiprocessor kernel development courses through a training center.

**Senior Software Engineer**

3 years

**Sequent Systems**, Beaverton, Oregon

Lead developer of the diagnostics for multi-processor UNIX systems; review hardware designs before board layout; design and implement the power-up diagnostics and bootstrapping firmware. Team leader of a three-person team.