

Resume

Kevin Packard, Software Engineer
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Profile: 19 years of professional software engineering development in languages including C++, Java, Objective C, various assembly languages, and various scripting languages. Experience with multi-platform development, including Mac OS X, Windows, Linux, and Symbian S60, and iPhone. Significant experience with realtime process development, audio & video manipulation, and QuickTime development. Developed several commercial VoIP and Conferencing products, including SIP, H.323, and H.320 compliant systems.

Experience

TapTapTap, Oct 2008 to present
Consultant

Project Ika - *a native iPhone application.* More information will be available soon. See <http://taptaptap.com>.

RADVISION, Ltd., Mar 2006 to May 2007; June 2008 to present
Consultant

Scopia Desktop - *a desktop video conferencing solution.* Developed conferencing client using blackfrog software's PComm framework. For more information about Scopia Desktop, see <http://radvision.com>. For more information about PComm, contact Kevin Packard at blackfrog software, inc.

Click To Meet - *an ancestor of the desktop video conferencing solution Scopia Desktop.* Implemented QuickTime plugins for Mac OS X and Windows to decode H.239 content video, using Intel's IPP libraries. Added encryption (both SRTP and Encrypted RTP) to audio/video communications in Windows client and Windows/Linux server.

Aweli, Inc., Jan 2008 to July 2008
Consultant

adgrinder - *a video advertisement creation, placement, and verification service.* Developed a native iPhone application that interfaces with Aweli Inc.'s adgrinder service. Developed back end process that dynamically constructs an MPEG-4 movie from a movie template, still images, and text. For more information, see <http://aweli.com>.

The Real School of Music, May 2008 to Sep 2008
Consultant

Scheduling Kiosk - *interactive kiosk software that displays live scheduling data, interspersed with promotional videos, displayed on flat screen televisions throughout the Real School facility.* Developed a Quartz Composer composition to display 3D scheduling data, interspersed with QuickTime movies. Scheduling data is pulled from a TimeTrade server using SOAP/XML. The QuickTime movie engine is extensible, allowing the client to add and remove movies from the display.

Aylus Networks, Inc., May 2007 to June 2008
Software Engineer

MediaShare - *a family of products that enable a new class of real-time multimedia services for mobile operators.* Tuned and standardized RTP stack, debugged and performed general maintenance of Symbian S60 IMS Video Share client. Extended open source project pjsip to signal and transmit H.263 video.

sentitO Networks, Mar 2005 to Dec 2005
Software Engineer

Carrier Asterisk - *an integration of the open source PBX Asterisk with sentitO's carrier-grade VoIP solution.*
Developed web application for VoIP carriers to manage subscriber provisioning and push configurations to a farm of Asterisk boxes.

Health Communications Research Consortium, Oct 2002 to Dec 2004
Consultant, Chief Architect, Network Services

Coherent Informatics - *a technology platform for secure, real time audio/video conferencing and collaboration.* Architected SIP signaling for authentication, location, and load-balancing services. Implemented portable SIP (RFC 2543), BEEP (RFC 3080), and RTP (RFC 1889, 1890) stacks capable of running on Windows, Linux, and Mac OS X. Implemented real-time audio/video QuickTime library for Mac OS X.

Dialout.net, Oct 2001 to Sep 2002
Consultant

ScclIP - *a service for routing data and fax calls on the internet.* ScclIP uses SIP call signaling over TLS. Architected SIP signaling for provisioning, authentication, location, billing, and load-balancing services. Implemented SIP stack capable of running in any 32-bit Windows kernel (client side), and on Linux (server side).

ImageXpert, Jan 2001 to Feb 5, 2002; Fall 2002; Jan-Mar 2005; Jan-Mar 2006
Consultant

ImageAnalyst - *a fully automated machine vision-based image quality measurement and analysis system.*
Ported and debugged 12 million lines of classic Mac code to Carbon and OS X. Implemented an OS X driver for a PCI image capture card. Added support for TWAIN scanners. Ported to intel processors on OS X. Added dynamic plugin architecture for third party development.

TeraGlobal Communications Corp, June 1999 to Jan 2001
Consultant

TeraMedia - *a collaboration service providing secure Audio, Video and Data communications across a private, reliable network.* Implemented a time-critical RTP subsystem for voice and video over IP, using secondary interrupts, on Mac OS 9. The architecture abstracted the network from the underlying operating system, for easy porting to other platforms. Implemented a multi-point SIP stack.

IBM, Pen Systems Group, March 1999 to June 1999
Consultant

CrossPad - *an electronic notepad for digitally capturing notes and drawings.* Began the development of a Mac application and USB driver, but the entire project was canceled shortly after starting.

White Pine Software, now **RADVISION, Ltd.** November 1996 to February 1999
Consultant

CU-SeeMe - *a multipoint video conferencing system for IP networks.* Originally developed at Cornell University, then acquired by White Pine Software. Redesigned and optimized QuickTime-based video subsystem, and QuickTime-based audio subsystem. Designed and implemented C++ object framework for core engine. Designed interaction between audio, video, and network subsystems, then integrated, profiled, and optimized the system. Implemented Motion-JPEG QuickTime codec from open source library. Assisted in debugging Apple's H.263 QuickTime codec. Assisted third party video camera manufacturers in debugging their vdiags, including Apple, iRez, ATI, and TrueVision.
CU-SeeMe product awards include PC Computing's 1998 A-List Award, 5-Star Shareware award, CTI Magazine's 1997 Editors' Choice, and Internet World's Best of the Net 1997

Workstation Technologies, Inc. January 1992 to November 1996
Software Engineer

Chameleon - a single board H.320 video conferencing system. NuBus, PCI, and ISA bus systems (Mac OS and Windows), available for OEM. Customers include Apple Computer, Northern Telecom, VTEL, and Corel. Ported, tuned and expanded firmware. Ported ISDN protocol stack. Implemented QuickTime Conferencing components and drivers for NuBus and PCI cards. Platform-independent architecture resulted in a significant amount of shared code across operating systems and bus architectures.

VISIT Video - a video conferencing system for Switch-56 digital telephone systems. OEM'd by Northern Telecom, Inc. Invented and implemented real-time image compression algorithm. Helped develop communications, video conferencing application, QuickTime components, and firmware for the lifetime of the product.

MoonRaker - a video/audio digitizer card for movie capture and real-time video effects. Implemented the QuickTime components that drive MoonRaker hardware during QuickTime movie capture.

WTI-PrimeTime - a television tuner controlled via the Apple Desktop Bus. Implemented application, HyperCard XCMD, and ADB bus controller. Helped debug firmware.

Custom Software, Inc. December 1988 to January 1992
Software Engineer

MacTools Optimizer - a disk utility that consolidates files and free space on a volume, improving disk performance. Released in MacTools Deluxe for the Macintosh, by Central Point Software. Tuned and debugged engine, and developed a new user interface.

Shotgun - a high-speed file name and file content searching utility. Documents are displayed in native fonts and text styles.

XTreeMac - a disk organization utility and Finder replacement. Implemented the File Finding feature, and fixed numerous bugs for the 1.02 release.

Skills

Languages: 19 years of professional programming experience in languages including C/C++, Java, Objective C, various assembly languages, and various scripting languages.

IP Networking: Experience with BSD sockets and Winsock API's, including the use of IO Completion Ports and other techniques for efficient threading.

Threading: Experience with threaded architectures and thread synchronization issues on POSIX and Windows platforms. Familiar with multi-platform libraries for thread synchronization, including pthread, ACE, and ptypes. Dabbled with Java threading.

Mobile Development: Experience Symbian S60 and iPhone platforms.

Communications, VoIP, Conferencing, and Streaming: Developed several commercial Video Conferencing systems, including SIP, H.323, and H.320 compliant systems. Developed SIP protocol stack (RFC 2543) for Linux, and Windows kernel. Developed second multipoint SIP stack for Linux, Mac OS X, and Windows clients/servers. Implemented real-time RTP stacks (RFC 1889, 1890) for three Mac OS products, including Mac OS X. Developed portable BEEP (RFC 3080) and STUN (RFC 3489) stacks. Experience with ITU's H.323 and H.320 umbrella specifications. Experience with RTSP (RFC 2326) streaming protocol, Experience with an ISDN protocol stack.

Apple QuickTime: Implemented QuickTime components for five families of products, including components for video digitizing, video compression/decompression, file import, media handling, RTP reassembly, and movie control.

Some components implemented for both Mac OS X and Windows. Implemented real-time audio/video encode/decode engines for three products using QuickTime.

Graphics & Image Processing: Invented and implemented a real-time image compression algorithm for a Video Conferencing system using digital telephone lines (ISDN and Switch-56), analog telephone lines, and IP as transport medium. Experience with image filters, dithering, compression, and other aspects of image processing. Some OpenGL dabbling. Experience with related OS X technologies: Core Image, Core Video, and Quartz Composer. Experience with Intel's Integrated Performance Principals (IPP) library.

Sound Processing: Implemented Mac OS sound input driver and sound compression components for one family of products. Implemented interrupt level sound management code for real-time encoding and decoding of compressed audio for voice-over-IP. Experience with OS X Core Audio.

Open Source: Experience with pjsip, the Asterisk PBX, oSIP, Reciprocate, the OpenH323 project, the VOVIDA SIP stack, PWLib, ptypes, ACE, and the Darwin RTSP Streaming Server. Dabbled with OPAL.

Drivers: Implemented a Mac OS X PCI driver for an image capture card. Implemented a Mac OS 9 USB drivers for multi-interface USB device. Implemented Mac OS 9 drivers for several PCI and NuBus audio/video/communications cards.

Hardware/Firmware: Maintained kernel for an embedded system that included memory management, messaging, and dynamic code module loading. For a later project, maintained and tuned firmware for a complete H.320 video conferencing implementation. Worked closely with hardware engineers during testing and debugging of several hardware projects.

UI Frameworks: Experience with Mac OS X Cocoa and Carbon API's. Experience with the iPhone SDK. Experience with Symbian S60 framework.