

Kenneth H. Sinclair

179 Allen Ave
Newton MA 02468

617.321.2120 (office/mobile)

617.527.9238 (home)

khs@ieee.org

Independent embedded systems engineer and experienced developer of quality products that combine innovative software, electronics, and wireless technologies

Summary

- Versatile computer and communications engineer, creative designer, and tenacious debugger of complex software, mixed hardware/software embedded systems, real-time control systems, wireless and secure devices
- Computer architect with extensive technical work in object-oriented language implementations, operating systems, client/server software systems, memory management, and I/O and processor architectures
- Quality assurance leader with proven ability to motivate, design, and deploy improved processes and adopt new technologies to increase quality and productivity
- Experienced software development manager with additional background in marketing and quality assurance, and the project management experience to deliver products on time and on budget
- Good technical writer who can document complex systems in clear, clean illustrated prose

Technical Competencies

<i>Specialties:</i>	Applied cryptography, smartcards, robotics, motor control, digital signal processing, unlicensed and cellular wireless data, biometric security (fingerprint and voice id), speech recognition and synthesis
<i>Programming languages:</i>	Java, C, C++, Perl, Visual Basic, Scheme, Common Lisp, Smalltalk, VHDL
<i>Operating systems:</i>	Windows, Linux, MULTOS, none
<i>Software tools:</i>	GNU Emacs, CVS, Subversion, Git, Visual Studio, Microsoft Office, Project, Visio, many compilers, assemblers, and debuggers
<i>Hardware tools:</i>	TI DSPs and CodeComposer, Altera FPGAs and AHDL, HP spectrum analyzers and RF signal generators, many scopes and logic analyzers

Employment

iCache, Inc.	Security Architect and embedded system developer	2006-Present
Under contract as device designer, security architect, and embedded software engineer for forthcoming “smart wallet” device including biometric security perimeter audited and certified by major credit card firms.		
Voice Analytics, LLC	System Architect and software developer	2005-Present
Under contract to develop speech recognition and text-independent voice identification algorithms for proprietary system.		
iRobot, Inc.	Program Manager and System Architect	2003-2006
Under contract as Program Manager and System Architect, led an iRobot R&D team in the development of a sophisticated interactive consumer robot. Responsible for \$2m project budget over two years, managing outsourced project team at several international sites and organizations. Led industrial design and mechanical design team, led development of onboard electronics, wireless communications, motion control, and embedded Linux software systems, authored system specifications, designed multi-modal user interaction model combining motion, voice I/O, color touchscreen, and electronic paper technologies. Also responsible for relationship management and project coordination with Asian R&D partner.		

Computer Sports Medicine, Inc. **Embedded system developer** **2001-2003**

Designed and implemented DSP-based motor controller for human assessment machine. Controller hosted by Windows PC over USB link, contains TI DSP and mixed-signal motor interfaces, and implements a variety of isokinetic, isotonic, and isometric motion profiles, a high-performance motor control system, and a redundant safety system for FDA 510(k) approval. Implemented firmware in C, host diagnostics in Visual Basic. Product applications include post-surgical limb range-of-motion assessment, physical therapy, and measuring the knee torque and power output of all NFL draft picks from 2002 through 2007.

Wavetrain (self-employed) **1998-2000**

Designed and prototyped software radio transceiver for use in portable computers (palmtops, tablets, laptops) to support wireless applications such as instant messaging, email, and intranet forms. Designed robust local-area wireless channel (frequency-hopped spread-spectrum, continuous-phase modulation), prototyped 900mhz radio (integrated silicon RF transceiver, DDS, Altera FPGA, 8-bit ADC, TI 'c5402 DSP), implemented Motorola FLEX demodulator/decoder for wide-area paging mode.

Object Design, Inc. **Burlington MA** **1991-1997**

Engineering Manager

Led development team responsible for conceiving and developing the ActiveX interface to ObjectStore using Microsoft OLE and COM technologies. Expanded product line to low-end with single-user PSE for ActiveX product, and to Internet applications on both client-side and server-side. Led repositioning of Object Design into the Windows and component software market. Authored specification for object database integration with the Java programming language, accepted as ODMG industry standard.

Director of Quality Assurance

Started and built 12 person quality assurance department to complement existing 50 person engineering department, administering \$1M annual budget for several major concurrent projects. Deployed a wide range of improved software development processes, including peer review, defect tracking, automated test administration, concurrent test design, quality metrics, online quality system. Led design and development of 400K line test suite in C++ for ObjectStore. Improved customer-perceived product quality by a factor of six.

Symbolics, Inc. **Cambridge MA** **1986-1991**

Managed 15 person software department responsible for producing Symbolics CLOE, a PC Common Lisp product, and Symbolics CLIM, an advanced object-oriented user-interface system.

Designed virtual memory hardware and other architectural components for Ivory microprocessor. Designed and implemented Ivory simulator and test suite that resulted in functional first-pass silicon. Designed and developed virtual memory system, I/O hardware and software, and other operating system components for several Lisp workstations. Received Symbolics Technical Achievement award.

Lisp Machines, Inc. **Cambridge MA** **1984-1986**

Remicrocoded LMI Lambda Lisp processor to double performance. Designed and implemented state-of-the-art incremental garbage collector with hardware support.

Education

Massachusetts Institute of Technology **1980-1984**

Undergraduate and graduate level coursework in electrical engineering, physics, and computer science subjects.

Portfolio, Publications, and References

Available upon request.