

Christopher MacGregor

chris@cybermato.com – 206-650-0686

Condensed résumé – for more detail see www.cybermato.com/chris/resume

Objective

An opportunity to design and implement solid systems in a Unix/Linux or embedded environment.

Value

Highly motivated, very experienced; Emphasizes robustness, quality, extensibility, reusability, and maintainability; Excellent written and verbal communication skills; Detail-oriented; Broad base of knowledge and significant depth in many areas; Fast-learning self-starter; Works well independently and/or in a team

Summary of Skills

- Design and implementation of large and small software systems (embedded & real-time systems on 8-bit microcontrollers with 16k RAM to client/server networked systems on 32-bit RISC CPUs w/Linux)
- Kernels, device drivers, software tools, compilers, simulators, middleware, code generation tools
- Libraries, API design and implementation, runtime environments

Keywords:

C++, templates, STL, exceptions, ANSI C, Perl, SQL, HTML, XML, PHP, Python, Java, Javascript, bash, sh, awk, Lisp, Forth, ARM, Thumb, TriCore, Hitachi H8S/300, SH-3, MIPS, PowerPC, x86, 68020, PA-RISC, Z80, 6809, Linux (Redhat, Fedora, MontaVista), BSD Unix System V, Windows NT/95/98/2000/XP, Stratus VOS, X11, Qt, GNOME, GTK+, Iptables, Apache, Postfix, Cyrus IMAP, DNS, MySQL, TCP/IP, SIP, Perforce, SVN, CVS, RCS

Experience

CYBERMATO CONSULTING (Seattle, WA): April 2003 – present, **part time/occasional consulting**

UW Oceanography Dept. (4/2003 – present)

- Designed & implemented numerous significant new features and enhancements for an open source video editing program to adapt it to video analysis of real-world biological behaviors
- Designed & implemented a Linux interface to a 3D water current measurement device
- Designed & implemented a Linux interface to a stepper motor controller
- Currently designing and implementing a Linux interface directly to stepper motors and sensors
- Currently optimizing a program that solves specific Partial Differentiation Equations

Local stealth-mode startup (12/2007 – present)

- Porting Windows-based system to Linux, introducing portability layer, refactoring/restructuring

DIGEO (Kirkland, WA): May 2005 – January 2008, **Senior Software Engineer**

- Created automatic system to build cross-compilers and custom Linux distro from scratch for ARM, MIPS
- Led exploratory ports of Digeo's Moxi software to various other set-top boxes and devices
- Designed & implemented OpenGL subset including scaling+rotating+flipping blit using C++ templates
- Led exploratory port of RealPlayer (Helix) to Digeo's Moxi platform
- Modified Linux device drivers to improve performance and implement missing features
- Acted as a consulting resource to Engineering on various topics (advanced C++, Linux, etc.).

TIGERWAVE NETWORKS (Seattle, WA): March 2003 – May 2007, **Chief Technical Officer**

Co-owned and handled all technical aspects of small web & email hosting company (plus sales & tech support):

- Designed and partly implemented a customer-facing web-based control panel (Perl & MySQL)
- Implemented a text-based configuration generation system to automatically generate configuration files for the web, DNS, email, and other server systems from centralized customer information
- Managed all servers, networking equipment, software installation & configuration, system admin., etc.
- Invented a way to run FrontPage without the security holes (no setuid!! modified suexec & FrontPage)

SONY ELECTRONICS (Mountlake Terrace, WA): Feb. 2001 – April 2005, **Senior Staff Software Engineer**

- Designed, implemented, tested, documented, and deployed several large new software components for advanced research projects and prototypes, using C++ in a Linux-based embedded environment, such as:
 - Client/server-structured configuration info subsystem for LAN-based multiple-head media system
 - Infinitely multi-zoned flexible debug/trace output management system built on the configuration info subsystem
 - SIP-based VoIP+video communication management system
- Led project to rewrite LCD monitor firmware to adapt it and enhance it for a new product (8-bit micro)
- Designed, implemented, tested, documented, and deployed fully automated system for testing various aspects of TV functionality, such as compliance with V-Chip requirements (EIA-608B).
- Acted as a consulting resource to the group on numerous topics (advanced C++, Linux, drivers, software development process issues, design for reuse, etc.).

BSQUARE CORP. (Bellevue, WA): Nov. 1994 – May 2001, **Senior Software Engineer, Technical Lead**

- Technical lead for team porting Microsoft's retargetable back end to target the TriCore architecture.
- Designed creative solution to maintain backward source-level compatibility despite incompatible calling convention.
- Second-in-command of team porting Microsoft's retargetable back end to target ARM and later Thumb.
- Designed and implemented special peephole optimizer to take advantage of unusual ARM architecture.
- Designed and implemented ARM disassembler.
- Enhanced ARM's simulator to make some use of Microsoft debugging information.
- Part of a team writing and rewriting a back end targeting the Hitachi SH-3 processor in the Microsoft world (MS front end, COFF, linker, etc.); my work focused on code generation, low-level optimization, and bit assembly.
- Designed, implemented, tested, and deployed an assembler for the SH-3, designed to be compatible with Hitachi's assembler, producing MS-COFF (including some debug info).
- Worked with various customers, primarily Infineon, ARM, Hitachi, and Microsoft.
- Initiated, maintained, and broadened a relationship with the engineers at Microsoft maintaining tools we were porting. Delicately handled some difficult personalities. The majority of the interaction was via email.
- Enhanced C runtime in various ways.
- Debugged and fixed various WinCE kernel bugs.
- Proposed & implemented several initiatives improving development environment, including many new tools.
- Wrote a sophisticated set of customizable, extensible build scripts for the development tools (in Perl 5).
- Acted as a resource for other engineers.

GTE NETWORK MANAGEMENT OPERATIONS (Bothell, WA): Nov. 1993 - Dec. 1994, **Software Engineer**

- Designed, implemented, tested, and documented powerful new CM tool using Perl 4, RCS, and Sybase (SQL Server).

STRATUS COMPUTER, INC. (Marlboro, MA): May 1987 - August 1993, **Software Engineer**

- Developed and maintained toolset to automate source control/configuration/build/test management, still in use today.
- Ported new Stratus proprietary source control system to VOS.
- Developed and maintained powerful make front end (in Perl) and makefile framework, still in use today.
- Enhanced the GNU assembler (gas) to produce object modules for VOS (Stratus' proprietary operating system) for a PA-RISC based system under development; added features; fixed pre-existing bugs; ported gas to run native on VOS.
- Co-developed and maintained a tcsh-like shell for VOS.
- Developed large C library (still in use) to: provide or emulate standard Unix system calls and runtime functionality missing from VOS; provide ANSI C and POSIX compliance; ease porting of standard tools and other software.
- Designed, implemented, and tested an i80860 instruction-level simulator (ILS), using GDB as a front end.
- Maintained and enhanced an MC88100 ILS used for all software development for Stratus MC88100-based systems.
- Designed, implemented, and exhaustively tested high-performance MC88100 assembly language runtime routines: variable-alignment data moves and compares, varying-length string operations, PL/I data type conversions, etc.

Education: BS in Computer Science (with distinction), Worcester Polytechnic Institute (MA), 1990

References: See LinkedIn or www.cybermato.com/chris/references; Interactive references arranged on request