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Skills

Natural Languages: English, Dutch, Spanish, and German.

Computer Languages: Ruby, C, assembly (x86, AMD64, MIPS, and PowerPC), Common Lisp, Perl, JavaScript, Scheme, PHP, OCaml, Python, Java, C++, SQL (PostgreSQL, SQLite, MySQL, Sybase, and Oracle), HTML, XHTML, XML, and CSS.

Operating Systems: GNU/Linux (Debian, Ubuntu, RHEL, Gentoo, Slackware), NetBSD, OpenBSD, Mac OS X, DOS (MS-DOS and FreeDOS), and Microsoft Windows (2000 and XP).

Standards: C89, C99, FTP, gzip (RFC 1952), HTML, HTTP, IEEE 802.3 (Ethernet), IMAP, IPv4, IPv6, IRC (RFC 1459), JSON, Maildir, mbox, OpenGL, POP3, POSIX, SMTP, TCP (TCP/IP), UDP, XHTML, and XML.

Software: Apache, BibTeX, CUPS, Doxygen, Eclipse, Emacs, Exim, Foremost, GDB, Ghostscript, Git, GNU Binutils (as, objdump, etc.), GPG, Iconv, Java Memory Profiler, LaTeX, Lex, Mailvisa, MaraDNS, Maven, Netcat, NetPBM, NMap, OpenSSH (ssh, scp, etc.), OpenSSL, Polipo, Privoxy, PSUtils, RCS, RSync, RubyGems, Sendmail, Splint, Subversion, Tiger (security tool), Troff, Verum ASD, Wget, Wireshark, Yacc, cURL, indent, iptables, ltrace, make, ping, rdiff-backup, strace, traceroute, standard Unix commands (awk, cron, find, grep, mknod, renice, sed, etc.), and X11 (XCB, Xlib, xmodmap, xrdb, xvidtune, xwd, etc.).

Professional Experience

Programmer/Designer
TriOpSys
http://www.triopsys.nl/
September 2007–present

TriOpSys is an automation company that specializes in designing, building and controlling mission-critical IT systems. Application domains include public order and security, traffic management, defense and aerospace, and service and maintenance.

- Helped deploy a new information system at all police departments in the Netherlands. Responsible for interoperability with other systems at multiple organizations.
- Developed high-performance, memory-efficient XML readers and XML writers to process large volumes of XML under real-time constraints.
- Helped design and implement multiple traffic data processing applications for the Dutch department of transportation.
- Participated in the requirements analysis, design, and implementation of a new Climatological Information System for the Royal Netherlands Meteorological Institute.

Developer
Noxa BV
http://www.noxa.nl/
March 2007

Noxa operates a number of websites on behalf of the CareerNetwork Holding. Among the sites operated by Noxa are studentenwerk.nl, careernetwork.nl, scholierenwerk.nl, stagehulp.nl, parttimewerk.nl, and kamerhulp.nl.

- Helped re-implement high-traffic websites with Ruby on Rails.
- Wrote RSpec tests.
- Helped improve my colleagues' knowledge and understanding of Ruby.

Developer
Gong Reflections BV
http://www.gong.nl/
February 2005–December 2005

Gong is a company that matches skillful students with jobs made available by Gong's corporate customers. I redesigned Gong's database and the web interface to it, implemented the new design, migrated the data from the old database, and maintained the new database and web interface.

Webmaster
ScooterFreaks
http://www.scooter-freaks.nl/
May 2004–September 2004

ScooterFreaks is a website for everything related to (motor) scooters. I rewrote large portions of the website using PHP, XHTML, and CSS, and sanitized the database access code.

Webmaster
Verdonck, Klooster & Associates
http://www.vka.nl/
June 2000–December 2001

Verdonck, Klooster & Associates is a consultancy firm. I redesigned and re-implemented their website using PHP, XHTML, and CSS and performed regular maintenance and frequent updates. I also developed a web interface to the MySQL database used to manage mailing lists.

Education

Master of Science
University of Twente
September 2003–January 2007

Subjects: compiler construction, functional programming, advanced programming concepts, protocol engineering, mobile and wireless networking, concurrent and distributed programming, modeling and analysis of concurrent systems, hardware/software co-design, embedded computer architectures, advanced logic, lambda calculus, linear algebra, code theory, encryption, security, fault-tolerant digital systems, instrumentation of embedded systems, testing techniques, system validation, graph theory, and algorithms, data structures, and complexity.

Thesis: Ahoy: A Proximity-Based Discovery Protocol. Describes the design and implementation of an efficient, decentralized service discovery protocol for mobile ad-hoc networks, based on attenuated Bloom filters.

- Designed and implemented a simple programming language and compiler.
- Performed a short research project on forward error correction as an alternative to retransmits for achieving reliable transmission.
- Implemented a SPIN-like model checker.

Exchange
University of California, Davis
January 2002–June 2002

Subjects: C++, artificial intelligence, MIPS assembly language, design and implementation of operating systems, Spanish, and analytical philosophy.

- Implemented a lottery scheduler in the MINIX 2.0 kernel.

Bachelor of Arts in Sciences and Humanities
University College Utrecht
September 2000–May 2003

Subjects: object-oriented programming using Java, databases, e-commerce, XML, XSLT, Spanish, linguistics, electrodynamics, and neuroscience.

- Designed a method to represent a Java-like object model in SQL.
- Implemented an e-commerce protocol.

Software I Have Written

The Voodoo Compiler: a compiler for the Voodoo programming language, a low-level abstraction providing a single target for native code generation.

TurboVM: a small and simple virtual machine with a RISC instruction set, useful as a compilation target for programming languages.

Alchemist: a code generation library that can be used to programmatically generate machine code.

muhttpd: a simple web server supporting HTTP, HTTPS, static pages, CGI scripts, and handlers based on MIME type.

Mailvisa: a Bayesian spam filter with good precision, recall, and memory usage.

Ahoy: an efficient, decentralized service discovery protocol for mobile ad-hoc networks (part of my Master's thesis).

libagc: a stop-and-copy garbage collector that supports finalizers and can be extended with new types at run time.

fectp (not released yet): a reliable transport protocol based on forward error correction; useful on high-latency links.

I have implemented DCC file transfers for the Pidgin instant messaging client (formerly known as Gaim). I have also developed and maintained various websites.