

BEN HOLLINGSWORTH - SOFTWARE ENGINEER

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SKILLS

- C/C++ (30+ years) • Linux/Unix sysadmin (30+ years) • Python (12+ years) • Perl (10+ years) • SQL (10 years)
- Bash • Agile/Scrum • Git/GitHub • Cross-platform builds • CMake • TCP/IP networks • AWS cloud computing
- 3D geometry • File format conversions • Intuitive UI design • Image processing • GIS • IFC

SUMMARY

I am a talented programmer and system administrator with experience in a wide variety of languages and platforms, but specializing in C++ and Linux. I have broad experience working across industries including finance, healthcare, structural engineering, remote sensing / GIS, telecommunications, and government services. I have a proven ability to work well with clients and teammates through all stages of a project, from gathering specifications through testing and maintenance. I have great attention to detail and pursue excellence in everything I do. When coding and designing networks, I focus on good design with an eye toward future maintainability rather than simply getting a quick fix out the door. I am an insatiable learner, and hope to tackle new challenges in innovative ways in my next role.

WORK EXPERIENCE

Software Engineer

Bloomberg, October 2023 - October 2024 (contract)

- Completed the first stage of a multi-year project to modernize a large system of financial stock trading software (Bloomberg's Ticker Plant) by migrating off Solaris and AIX onto Linux.
- Migrated legacy software (C/C++, Python, Perl, and FORTRAN) into a modern CMake + GitHub environment.
- Improved reliability by creating manual and automated (GoogleTest/GTest) unit tests and integration tests for each package, used for CI/CD with Jenkins.
- Analyzed and documented the function of each software package in Markdown, defining the procedures for multi-staged, automated roll-out and roll-back.
- Conducted detailed code reviews with other teammates to ensure accuracy, completeness, and consistency.

Programmer Analyst

Design Data / SDS2, September 2008 - March 2023

- Collaborated with a team of dozens of programmers to create a large, multi-platform (Windows / Linux) software package for structural steel detailing and 3D modeling, primarily using C++ and Python.
- Improved the capability, reliability, and accuracy of our low level 3D computational geometry libraries.
- Enhanced BIM capabilities to convert internal 3D models into industry standard file formats such as IFC and E57.
- Collaborated with an international design team to create the IFC4 file format used throughout the commercial construction industry.
- Streamlined usability by designing intuitive, multi-platform user interfaces using Tcl/Tk.
- Integrated large, third party libraries into our own multi-platform software package, frequently using CMake.
- Helped build our distributed, multi-threaded, automated software testing system written in Python and C#.
- Led the DevOps team that managed our in-house git repositories and cross-platform (Linux/Windows) build system using Make, GCC, MinGW, and Docker.
- Interacted with multiple teams within an Agile / Scrum framework.
- Assisted with Linux system and network administration, automating and streamlining processes where possible.
- Frequently got compliments from coworkers about how well documented and easy to understand my code is.

Systems Programmer

BryanLGH Medical Center, January 2005 - August 2008

- Helped lead a team of people responsible for Unix system administration, network security, SQL database administration, storage area networks, disaster recovery planning, and enterprise infrastructure design for a 3000-node, multi-campus network of Linux, AIX, VMS, Windows, and VMware servers; SAN storage; and desktop workstations.
- Ensured availability of mission-critical hospital systems by designing redundant, fault-tolerant configurations.
- Automated management and security processes using Bash / Perl scripts and SQL databases.

Programmer

GC-Image, July - December 2004

- Collaborated with other programmers to create a large Java application for the analysis of comprehensive two-dimensional gas chromatography (GCxGC) data.
- Spearheaded an innovative new method for interactive 3D viewing and change detection between multiple datasets. The bulk of my work was the implementation of concepts resulting from my master's thesis research (see EDUCATION below).

Co-founder / Vice President / System Administrator

Internet Nebraska, June 1994 - August 2011

- Brought the Internet to my hometown by creating Lincoln's first public Internet Service Provider and helping direct the growth of the company from a 3-man shop to the largest Nebraska-based ISP.
- Ensured reliable connectivity for customers by managing Unix system and network administration, specializing in hardware maintenance, electronic mail, DNS, Usenet news, and modem terminal servers.

Senior Programmer / System Administrator

Nebraska Interactive, October 1996 - May 2003

- Enabled, for the first time, online access by the general public to state government information.
- Collaborated with state government personnel to develop C, Perl, and HTML applications to modify numerous large databases (Informix, MySQL, Oracle), interface with mainframe applications via SNA, and provide public access to that data via web browser front ends.
- Improved productivity by creating low-level daemons, utilities and libraries used by other staff.
- Conducted system administration and hardware maintenance for a network of servers and workstations running Solaris and Linux as well as desktop PCs running Windows.
- Analyzed performance and conducted capacity planning for computer and networking resources.
- Developed security policies and disaster recovery procedures for office computer systems.

Senior Programmer / Analyst

Hickman-Kenyon Systems, May - October 1996

- Developed a large medical patient tracking application in Objective C and the OpenStep graphical environment for NeXT and Windows NT machines.
- Performed Unix system administration both in-house and while contracted to customer sites.

Software Engineer

Microlmages, October 1989 - January 1994

- Created and maintained several large, X/Motif-based C programs which were integrated with others into a single geographic mapping (GIS) / image processing software package running on a network of PCs running DOS and various Unix workstations.
- Developed conversions from numerous image file formats into in-house file formats.
- Wrote low-level drivers for XY digitizers in x86 assembly.

CERTIFICATIONS

AWS Certified AI Practitioner (AIF-C01, 2025)

AWS Certified Cloud Practitioner (CLF-C02, 2025)

EDUCATION

M.S., 2004

Computer Science

University of Nebraska - Lincoln

- Thesis research developed new comparative visualization techniques for two-dimensional gas chromatography data.
- Thesis implementation was integrated into a large Java application being developed with other programmers at GC-Image, LLC.
- Thesis is available online at <http://www.jedi.com/obiwan/thesis.pdf>. This work was also published in the *Journal of Chromatography A* and in the proceedings of the International Symposium on Capillary Chromatography and Electrophoresis.
- As a graduate research assistant, developed new remote sensing algorithms for use by USGS technicians to automatically identify clouds in multispectral Landsat satellite images. This research was presented at the SPIE Imaging Spectrometry conference, available at <https://www.jedi.com/obiwan/spie.pdf>.
- Assisted in research and development of graph matching algorithms implemented on massively parallel architectures for the 3rd DIMACS Challenge.

B.S., 1994

Computer Science

Minor in Electrical Engineering

University of Nebraska - Lincoln

- ACM involvement: UNL student chapter member for five years, during which I held the offices of chairman, vice-chair, and treasurer; international member 1990-99; SIGGRAPH member 1993-99.
- Led the programming team which took first place at the 1993 ACM Regional Collegiate Programming Contest for the north central region of the US and competed at the 1994 International Programming Contest finals. Also led the team that took second in the 1994 regionals and competed in the 1995 finals. As ACM chairman, I organized the regional contests hosted by our school.

PUBLICATIONS

Hollingsworth, B.V., Reichenbach, S.E. (2006). Comparative Visualization for Comprehensive Two-Dimensional, Gas Chromatography. *Journal of Chromatography A*, 1105(1-2), 51-58.

<https://www.sciencedirect.com/science/article/abs/pii/S0021967305022594>

Full text available at <http://www.jedi.com/obiwan/conference-gcxcg.pdf>

Also presented at the International Symposium on Capillary Chromatography and Electrophoresis (2005).

Hollingsworth, B. (2004). *Comparative visualization for two-dimensional gas chromatography* [Master's Thesis, University of Nebraska]. Semantic Scholar. <https://api.semanticscholar.org/CorpusID:35292567>

Full text available at <http://www.jedi.com/obiwan/thesis.pdf>

Hollingsworth, B. Chen, L. Reichenbach, S.E. Irish, R.R. (1996) Automated Cloud Cover Assessment for Landsat TM Images. *SPIE Imaging Spectrometry II*, 2819, 170-179. <https://api.semanticscholar.org/CorpusID:17663296>

Full text available at <http://www.jedi.com/obiwan/spie.pdf>