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ROBERT J. HANSEN

SUMMARY

More than 20 years of professional development experience. Master's in Computer Science. Completed all coursework for a Ph.D. in computer science. Extensive experience in development, cyberwarfare, and digital forensics.

TECHNICAL SKILLS AND PROFESSIONAL ACHIEVEMENTS

Software Development

- Java (20+ years); C# (15+ years); C++ (20+ years); Python (18+ years); many others, including Golang, Scala, F#, JavaScript
- Eclipse, Visual Studio, Autotools, the GNU Compiler Collection, Clang/LLVM, XCode
- Familiar with the full software lifecycle

Networking

- 20+ years experience with IPv4 stacks; 10 years with IPv6; have taught networking at the graduate level; have written a high-volume IPv4/v6 stream dissector and reassembler from scratch

Operating Systems

- Red Hat Enterprise Linux, Fedora, Ubuntu, FreeBSD, Windows XP and later, MacOS X 10.1 and later
- 23 years of experience with Linux

Presentations, Open Source Contributions, Etc.

- Black Hat 2005. "Guns and Butter: Towards Formal Axioms of Input Validation."
- CODECON 2006. "Djinni: Approximating NP-Complete Problems, Fast"
- OSCON 2006. Repeat of the CODECON 2006 presentation.
- DEFCON 14. "Trust But Verify: Auditing Proprietary DRE"
- Member of the board of COIN-OR (Computational Infrastructure for Operations Research)
- Maintainer of the Djinni compressed and simulated annealing library
- Maintainer of the NSRLtools, a set of applications to efficiently query NIST data
- Authored several forensics tools currently in use within the Community

EXPERIENCE   **SENIOR SOFTWARE ENGINEER, TELOS INC.**

2019-

- Seniormost engineer on their Ghost product line from version 1.5-present
- Integrated Tor with and into other products to create Ghost
- Deeply involved with AWS deployments, minimizing AWS dependencies so Ghost could be ported to other cloud providers, etc.
- Performed security analyses to ensure client confidentiality while using Ghost

SENIOR SOFTWARE ENGINEER, IRONNET INC.

2018-2019

- Brought on to overhaul an existing non-engineered unmaintainable large Python codebase the entire company depended upon for revenue
- Radically reduced SLOC while increasing performance and reliability
- Left after completing a yearlong assignment, leaving behind a working, high-availability, documented replacement written in Golang

SENIOR SOFTWARE ENGINEER, BOOZ ALLEN HAMILTON

2017-2018

- Mentored junior engineers in building large, reliable, high-availability software
- Built Golang/gRPC-based high-volume satellite imagery analysis tools, leveraging prior experience with the Quincy program
- Represented my team at national meetings comprising dozens of functional groups

SENIOR SOFTWARE ENGINEER, ARMEDIA INC.

2014-2016

- Mentored junior engineers in building large, reliable, high-availability software
- Senior software engineer attached to the Quincy forensics toolkit (C#, C++, C, Java)
- Developed new capabilities for the Autopsy forensics toolkit
- Developed of a number of in-house Quincy plugins
- Forensics R&D, including automatic detection of explosions in media, high-speed/high-volume EXIF tag analysis, image ballistics, and more

SENIOR SOFTWARE ENGINEER/SR. PRINCIPAL TECHNICAL TRAINER, BAE SYSTEMS

2012-2014

- Senior instructor for a Community technical operations program
- Senior software engineer attached to the Quincy forensics toolkit (C#, C++, C, Java)
- Implemented new Quincy features, improved the Quincy experience, and had a lot of fun working with a great team

SENIOR SOFTWARE ENGINEER, REDJACK LLC

2011-2012

- Developed a new network forensics workflow toolkit
- Built an HTML5 + JavaScript + AJAX user interface for it, allowing non-technical analysts to create complex analytics without needing to write a line of code
- R&D into network forensic technologies with prototypes in Java and C++
- Let go in a corporate downsizing: still have great relationships with people there

SENIOR SOFTWARE ENGINEER, MANTECH

2008-2011

- R&D into network, memory and mobile device forensics
- Development of new tools which provided wholly new forensic capabilities
- Taught an annual week-long immersive Python course: from nothing to writing real forensics applications in 40 hours of class instruction
- Graduate of ManTech's Advanced Cyber Training Program (ACTP)
- Instructor for ManTech's Advanced Cyber Training Program (ACTP)
- I still collaborate on side projects with my former ManTech co-workers

RESEARCH ASSISTANT AND INSTRUCTOR AT THE UNIVERSITY OF IOWA

2003-2008

- Studies pursuant to a Ph.D. in computer science (coursework complete; thesis remains to be written)
- Awarded a Master of Computer Science degree in May 2006
- Reverse-engineered electronic voting machine and developed exploits against them
- Founding member of ACCURATE (A Center for Correct, Usable, Reliable and Transparent Elections)
- Taught the undergraduate CS curriculum in both Java and C#
- Taught the graduate curriculum in computer security
- Taught the graduate curriculum in software engineering
- Invented a provably-secure defense against SQL injection attacks
- Invented the field of language-theoretic security
- Faculty advisor: Dr. Doug Jones

CHIEF SYSTEM ADMINISTRATOR, SIMMONS PERRINE ALBRIGHT & ELLWOOD PLC

2002-2003

- Chief system administrator for a heterogenous geographically-diverse network comprising four locations and almost 200 installations
- Made Novell NetWare, Mac OS X, Windows 95, Windows 98, Windows 2000 and Windows XP speak a common language of SMB/CIFS
- Found cost savings of over $250,000 by replacing per-seat licensed commercial software with open-source alternatives
- Developed custom software solutions when no open-source alternative existed and the cost of a commercial license was too great

SENIOR CRYPTOGRAPHIC ENGINEER, PGP SECURITY

2001-2002

- Ported the PGP 7.0 codebase to UNIX
- Developed a GTK+ interface for PGP 7.0
- Introduced CRYPTOKI/PKCS11 token support

SECURITY ENGINEER AND SOFTWARE ENGINEER, EXEMPLARY TECHNOLOGIES

1999-2001

- Third engineering hire for a San Francisco dot-com publishing startup
- Last engineer to leave the firm upon its implosion during the dot-bomb downturn

- Developed new DRM technologies and discovered vulnerabilities in competitors' offerings

SOFTWARE QUALITY ASSURANCE ENGINEER, MCI

1998-1999

- Extensive experience in Y2K remediation
- Acquired skills in COBOL, MVS/TSO, CICS, JCL and other mainframe technologies
- Learned a valuable life lesson: I don't like working with mainframes

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EDUCATION

THE UNIVERSITY OF IOWA – IOWA CITY, IOWA – MASTER OF COMPUTER SCIENCE

Master of Computer Science degree conferred in May 2006

CORNELL COLLEGE – MOUNT VERNON, IOWA – BACHELOR OF ARTS IN COMPUTER SCIENCE

Bachelor of Arts in Computer Science conferred in May 1998

REFERENCES

WILLIAM A. "CONTRA" TROBBIANI

Offensive Security (former co-worker from IronNet)

watrobb@gmail.com

JESSE D. KORNBLUM

Facebook (former supervisor at ManTech)

jessekornblum@gmail.com

EUGENE Y. LIBSTER

Dark Star Solutions (former co-worker from RedJack and ManTech)

elibster@gmail.com