Sheldon Dealy

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Australian Citizen

Professional Interests

Cryptography, optimization problems, low level code, device drivers, research prototypes, network applications.

Professional Strengths

My experience covers a range of software projects involving all aspects of the software development life-cycle. This software was developed for various operating systems using programming languages appropriate to the application.

My communication skills are excellent. I work well as part of a team or alone. I have earned the respect from my colleagues because I negotiate realistic deliverables and then meet milestones and finish projects within the scheduled time constraints. Communication is the key to maintaining reasonable expectations under tight schedules.

Some of my best work has been writing network applications and low level software working at the hardware interface. I enjoy working on difficult problems.

There is something satisfying about turning a concept into reality. I am a hands-on kind of person who enjoys giving ideas traction - where the research meets the road. I am a results oriented person.

"Whatever is worth doing at all, it is worth doing well." Philip Stanhope, 1746.

Experience

CSIRO, Sydney Australia
August 2006 to January 2011, Research Team Leader, Information and Communication Technologies Centre (ICT)

Line manager for the Research Engineering Team of the Network Technologies Lab in the CSIRO ICT Centre. Supervised, mentored and protected from interference a team of uniquely skilled software developers.

Worked in consultation with senior CSIRO scientists to give accurate time and human resource estimates for development of various research projects from proof of concept to partner hand-off.

Quality of Service (QOS) project using a novel Internet Rate Management Protocol (RMP). Designed and developed RMP in microcode for EzChip Network Processor Units. Validated RMP using high volume traffic with video, VOIP and data traffic. Design issues include asynchronous packet processing vs microcode instruction limit to insure line-speed throughput.

Dynamic Collaboration Service (DCS) is a project combining several research projects. DCS used timed, self-managed collaborations using eContract research and a Key Ephemeriser. Security provided by Trusted Extension

Device (TED) using a Trusted Platform Module (TPM) chip. Dynamic resource allocation, e.g. distributed storage using Virtual Storage Operator (VSO), and (shared) Virtual Terminals (VT). The lot was implemented using dynamic VPNs on Cisco switches and RAID storage devices. User interface was built on network services using Java servlets with Apache Tomcat.

Centre for the Mind, Sydney University, Sydney NSW, Australia
2005 to 2006, Research Assistant.

Developed a timed jigsaw experiment in Java to examine how people with autism assemble jigsaw puzzles compared with the general population.

Developed an experiment to determine the uniqueness of ideas with a novel method of evaluating the Hamming distance between pairs of nouns. The Hamming distance was calculated by the proximal frequency of word pairs found in bodies of random text collected from web pages.

Cell Biology Department, University of New Mexico, Albuquerque New Mexico, USA, 2003 to 2005, Research Assistant

I designed and implemented a model of genetic regulatory networks in living cells using ensembles of random Boolean networks. Predictions made from the results of these experiments infers wet lab experiments. My thesis on modeling pathways of cell differentiation is available online: http://cs.unm.edu/~sdealy/thesis.

Computer Science Department, University of New Mexico, Albuquerque New Mexico, USA, 2001 to 2002, Research Assistant

Investigated formal verification of cryptographic key exchange protocols using the US Naval Research Lab (NRL) protocol analyzer.

Intel Corporation, Hillsboro, Oregon, USA
1995 to 2001, Software Engineer, Network Communications Group (NCG)

Software architect and developer for a Crypto Engine for pre and post-test of silicon logic used in the Intel PRO/100S IPSec encryption network card using DES, 3DES, SHA1, and MD5. Developed unique bit-shifting algorithm, US patent #6,801,625.

Received Intel's NCG Operations Recognition Award for using personal initiative to mentor junior engineers.

Authored numerous device drivers for network interface cards (NICs) for ISA and PCI bus. Root-caused NIC problems back to the hardware or software using debuggers, logic analyzers and other tools.

Assembled Flash ROM debugger for Boot ROM and real mode network card drivers.

Maintained and enhanced device driver software for a suite of ISA/PCI, Token Ring/Ethernet network cards. Where applicable, maintained associated firmware.

Created Java Native Interface (JNI) framework to interface between driver management Netware Loadable Module (NLM) and remote Java GUI.

Designed and implemented WIN95 C++ Network Device Installation DLL for Intel PRO/100 cards.

Designed and implemented diagnostic firmware for a prototype network communications server.

Rogue Wave Software, 1993, Corvallis, Oregon, USA, Intern Software Engineer

Ported C++ class libraries to a variety of compilers.

Provided technical support for C++ class Libraries.

Education

Master of Science (Computer Science), University of New Mexico, Albuquerque, New Mexico, USA, 2005, GPA 3.72/4.00. Emphasis on Complex Systems. Successfully defended a Masters thesis on modeling pathways of cell differentiation using Random Boolean Networks. Advisor: Stuart Kauffman.

Bachelor of Science (Computer Science), Oregon State University, Corvallis, Oregon, USA, 1995, GPA 3.41/4.00. Emphasis on Software Engineering. Senior research project on Industrial Software Documentation Process Maturity Model (DPMM). Advisor: Curtis Cook.

Publications

Zvi Rosberg, John Matthews, Craig Russell, Sheldon Dealy, "Fair and End-to-End QoS Controlled Internet", Third International Conference on Communication Theory, Reliability and Quality of Service (CTRQ), Athens, Greece, June 2010.

Z. Rosberg, F. Sabrina, S. Dealy, J. Matthews, C.Russell, "Rate and Delay Controlled Core Networks: An Experimental Demonstration", IEEE International Workshop on Quality of Service (IWQoS), Charleston, South Carolina, 2009.

Dealy, S., Kauffman, S., and Socolar, J., "Modeling pathways of differentiation in genetic regulatory networks with Boolean networks", Complexity, Wiley Publications, Vol 11, Issue 1, 52–60, 2005.

Referees

Referees are available on request.