Russell D. Fish

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SUMMARY:

I am an experienced system designer, software developer, and problem-solver.

My highest skill is leading a technical team in developing and refining systems designs, detailing and producing implementations, and evolving software systems from rapid prototypes to mature products. I strongly support good team process, communication, and mentoring.

EDUCATION:

- B.S. Math and Computer Science, 1973, The Lindenwood Colleges, St. Charles, Missouri.
- Graduate studies in Computer Science, 1975-1977, University of Utah, Salt Lake City, Utah.

COMPUTER KNOWLEDGE:

- Languages: Python, OpenGL/GLSL, PHP/HTML, Perl, SQL, C++, C, C#(C-Sharp).NET, Java, Visual Basic, shell/AWK, TCL/TK, Lisp, APL, Fortran, assembly.
- Databases: MySQL, Oracle, SQL Server, Access, DBASE3/Clipper, IDMS, IMS, API's: ADO, OCI, ODBC, JDBC, VDBC, Python-DB.
- Systems: MacOS/FreeBSD/Linux/UNIX (15 varieties), Emacs, Windows XP/2000/NT/98, embedded, cross-platform: Cygwin/XFree, SSH, VNC, RDP, VMWare, Parallels, Citrix.

PROFESSIONAL EXPERIENCE:

Senior Software Engineer, Verio, Inc., Orem, Utah. November 2009 - present

- Verio is a large virtual web hosting company. I am a member of the Cloud9 development team that is creating Verio's new cloud hosting product for small-to-medium-sized businesses, using Python, Django, and MySQL, together with a proprietary mix of cluster software components.

Embedded Software Engineer, Systronix, Inc., Salt Lake City, Utah. October - Nov, 2009

- Systronix is a small contract electronic engineering firm led by Bruce Boyes, an electrical and computer engineer and entrepreneur.
- I contracted with Bruce supporting early phases of software design and development for an embedded ZigBee Pro (802.15.4) wireless control network. In this product, a color touch-screen handheld unit controls rapidly reconfiguring sports facilities such as gymnasiums.

Independent software developer, Salt Lake City, Utah. June-September 2009

- I designed and started implementing Gem, my own open-sourced geometric modeler in Python and OpenGL. Gem is a cross-platform aid to making precise, 2D and 3D diagrams CAD drawings, and models of objects for engineering and manufacturing.
- Gem is designed to be easily ported to different languages and GUI toolkits, and to run either as a stand-alone application, or as a plug-in or extension to other drawing programs and modelers. Gem is also designed to work as a remote collaboration "design whiteboard", for example while diagramming software or designing mechanical parts.
- The Python "GemCore" geometry library is a new implementation, quite similar in design to the Alpha_1 "Shape_edit" basic geometry library.

Software Engineer in Computer Aided Design and Modeling, Nanorex, Inc., Bloomfield Hills, Michigan. January, 2008 - March, 2009

- Worked remotely from my home in Holladay, Utah designing and implementing the NanoEngineer-1 molecular CAD software, in Python with the Trolltech Qt GUI toolkit and OpenGL/GLSL.
- My major project in NE1 was **speeding up the real-time interactive 3D graphics display** of molecular "ball and stick" models by a **factor of 50 times faster**, drawing 50 frames per second for single DNA Origami tiles. Assemblies of 10 tiles, which were previously impossible to design interactively, now display at 10 FPS, so **100 times faster**.

Computer Science Researcher, Flux Research Group, School of Computing, University of Utah. March, 2004 - December 2007

- Worked as a research staff programmer in a networking and operating systems research group.
- Extended the Emulab.net network emulation testbed system, used by over 1500 researchers in hundreds of organizations worldwide. Emulation means each experiment has repeatable access to hundreds of real physical computers and network VLANs, with controlled network link characteristics.
- My work included porting the Emulab experiment node management software to Windows XP, implementing a complete automated testing framework and SQL injection scanner for the Emulab web interface, and improving the accuracy of robot location-sensing on a mobile wireless sensor-net testbed.

Software Engineer, Think3, Inc. R&D group, Salt Lake City, Utah. May, 2003 – February, 2004

- Worked as both the local system integrator and a software developer, contributing to Think3's Computer-Aided Industrial Design software product.

Software Engineer, Stabro Laboratories, Inc., Salt Lake City, Utah. Sept, 2001 – December, 2002

- Worked with the I.S. director to create the next generation of Web-enabled calibration laboratory work-flow software, based on C# client apps, XML-RPC/SOAP, and Linux servers with Apache, Zope, Python, MySQL and Samba.

Systems Programmer, Halosoft, Inc., Pittsburgh, Pennsylvania. January-August, 2001

- Created extensions and server benchmark demonstration applications for the *Viva* multi-language distributed OS as part of a small core team in a start-up company.

Co-founder and Project Technical Lead, GDC (Graphics, Design, and Computation) Research Project, School of Computing, University of Utah. 1980 to 2000

- Served as the chief system architect and a lead implementer of the *Alpha_1* 3D sculptured-surface engineering CAD and computer graphics software project.
- Personally advised the software portions of at least thirty M.S. and Ph.D. research projects, as well as the continuous software evolution work of a staff of up to eight full-time programmers.
- Led research in NURBS algorithms, parametric and geometric design, automated mechanical engineering and CNC manufacturing processes, telecollaboration, and object-oriented systems.
- Worked with the C.S. Department computing facility staff to develop and maintain a large research network of Unix graphics workstations.

Scientific Applications Programmer, Envirotech Information Systems Division. 1977 to 1980

- Developed and implemented projects in support of engineering and manufacturing.
- Co-authored *Sketch*, a graphical editor/front-end for structural engineering analysis programs.
- Developed a computer-numerically-controlled machining (CNC) programming environment.
- Evaluated CAD/CAM systems for engineering design and NC programming.
- Architected, designed, and implemented all software for a new process control microcomputer.

Graduate student, teaching assistant, and research assistant, DARPA 3D Computer Graphics Research Project, Computer Science Department, University of Utah. 1975 to 1977

- Research Area: Portable, object-oriented architectures for geometric modeling systems.

Computer Center Operations Manager and Systems Programmer,
Parks College of Aeronautical Technology, Cahokia, Illinois. 1973 to 1975

- Responsible for all administrative and engineering data processing for a small college.