

Gary W. Johnson

5631 Carnegie Loop
Livermore, CA 94550
Home: (925) 455-5655,
email: gwj@spamcop.net
web: <http://web.mac.com/gwj>
Work: (925) 423-0156 johnsong@llnl.gov

SUMMARY OF QUALIFICATIONS:

Renaissance engineer with 29 years R&D experience in analog/digital electronics.
Extensive practical R&D skills in all aspects of analysis, design, and fabrication.
Proven leadership ability.
Highly organized and effective.
Excellent communicator and team player.

EDUCATION:

BS in Electrical Engineering/Bioengineering, University of Illinois, Urbana, IL, 1981

SKILLS:

Hardware: Instrumentation, measurement, and control systems, high-performance analog circuits, analog/digital interfacing, data acquisition, DSP, image processing, RF, industrial process control, photonics and lasers, pulsed power, transducers.

Software: LabVIEW (internationally-recognized expert), C for embedded applications, SPICE, OrCAD, Igor, various analysis and simulation packages.

Management: Project management, functional group leader, technical proposals, technical writing and editing.

CLEARANCES: Q, SCI

EXPERIENCE:

Software Lead Engineer, NIF Optics Mitigation Facility (8/08-10/09). Directed a team of four LabVIEW developers plus a QA engineer in the creation of automation software for the Optics Mitigation Facility. Duties include defining software architecture at all levels, developing and maintaining requirements documents, creating and enforcing coding standards, implementing formal QA tools and integration thereof, creating formal test plans, training developers, and scheduling work. Final product provided high-level automation of three production workstations involving control of motion, lasers, and cameras, and real-time integration with NIF Program Oracle databases.

Project Engineer, Special Technology Applications Group, Global Security Directorate (10/98-8/08). Design lead for control systems in development of free-space optical communications. Write technical proposals, scope work, prepare plans and budgets, make sponsor presentations for numerous parallel projects in a fast-paced US Government-

sponsored program (\$12M/yr, 20+ FTEs). Prepare specifications, perform simulation, analysis, and breadboarding, and lead design teams on complex electro-optical control systems with analog, digital, and DSP functionality. Test Director on field experiments. Primary programmatic resource for formal documentation. Develop LabVIEW applications for flight experiments, automated test equipment, real-time control testbeds, and user interfaces. Developed controls and microfluidics for the Integrated Optical Capillary Electrophoresis sensor, a lab-on-a-chip chemical detection system.

Acting Group Leader, Instrumentation Systems Group, DSED (2000-2001). Functional group leader, 14 FTEs.

Electronics Engineer, Chemistry and Materials Science (3/92-10/98). PI for LDRD, “Solid State Detonator.” Development and characterization of thin-film materials for electronic applications, particularly high energy density capacitors. Assist with ultra-clean/high-vacuum sputter deposition process development. Write proposals for new initiatives, deal with DOE sponsor (proposals, meetings, reports), develop tech transfer partnerships, manage funding, present results. Develop signal conditioning hardware, data acquisition, control, and analysis software. Software architect for the Laser Cutting Workstation, a joint Defense/Laser Programs project (eight man-years software effort). General instrument and control support for C&MS laboratories including ion implanter diagnostics, laser welding, and Uranium processing. Measurement of radiation-induced conductivity and resistivity of high-explosive compounds, a quick-response activity for Defense Programs.

Lead engineer, Special Isotope Separation (4/87-3/92). Responsible for vapor diagnostics, comprising swept dye lasers, electro-optics, and pulsed plasma instrumentation. Develop data acquisition solutions for small laboratories. Develop and maintain e-beam HV systems. Develop aqueous chemical sensors.

Design engineer, Liquefied Gaseous Fuels Program (4/81-4/87). Fielded an array of 1,000 sensors (meteorological and gas detection) with remote data acquisition. Developed new instruments (IR absorption spectroscopy, meteorological), performed maintenance and calibration. Responsible for all aspects of industrial process control during design, construction and operation of the LGF Spill Test Facility at the Nevada Test Site.

HOBBIES:

Woodworking, amateur radio, music, hiking, bicycling.

PUBLICATIONS:

Books:

Johnson, G.W., *LabVIEW Graphical Programming*, NY:1994, McGraw-Hill. ISBN 0-07-032692-4.

Johnson, G.W., *LabVIEW Graphical Programming*, Second Edition, NY:1997, McGraw-Hill. ISBN 0-07-032915-4.

Johnson, G.W., Editor, *LabVIEW Power Programming*, NY:1998, McGraw-Hill. ISBN 0-07-913666-4.

Johnson, G.W. and R. Jennings, *LabVIEW Graphical Programming*, Third Edition, NY:2001, McGraw-Hill. ISBN 0-07-137001-3.

Johnson, G.W. and R. Jennings, *LabVIEW Graphical Programming*, Fourth Edition, NY:2006, McGraw-Hill. ISBN 0-07-145146-3.

Articles:

Gary W. Johnson, "An Accurate S-Meter for Direct Conversion Receivers," *QST*, 92:2, February, 2008, p. 33-36.

Papers:

Gary W. Johnson, Anthony J. Ruggiero, Farid U. Dowla, "Fade-Tolerant Forward Error Correction for Ultra-dense Wavelength Division Multiplexed Free-Space Optical Communication Systems," UCRL-ID-154052, June, 2003.

Gary W. Johnson, Bruce D. Henderer, Jeffrey W. Wilburn, and Anthony J. Ruggiero, "Characterization of Fibre Channel over highly turbulent optical wireless links," *Proceedings of SPIE Vol. 5160*, San Diego, August, 2003, paper no. 5160-37. p. 289-291. UCRL-JC-151555.

T. R. Ruggeiro, G. W. Johnson, R. A. Young, P. J. Kuzmenko, S. D. Mostek, and D. T. Rippee, *Integrated Optical Capillary Electrophoresis Chip Fabrication*, UCRL-MA-150724, October, 2002.

Gary W. Johnson, John P. Cornish, Jeffrey W. Wilburn, Richard A. Young, and Anthony J. Ruggiero, "Characterization of Gigabit Ethernet over highly turbulent optical wireless links," *Proceedings of SPIE Vol. 4821*, Seattle, July, 2002, paper no. 4821-32. UCRL-JC-146490.

Charles A. Thompson, Scott C. Wilks, James M. Brase, Richard A. Young, Gary W. Johnson, Anthony J. Ruggiero, "Horizontal Path Laser Communications Employing MEMS Adaptive Optics Correction." *Proceedings of SPIE Vol. 4821*, Seattle, July, 2002, paper no. 4821-17. UCRL-JC-145326.

Johnson, G.W., *Graphical Programming Tools for Control System Development*, Presented at the Third Biennial Tri-Laboratory Engineering Conference on Modeling and Simulation, November 2-3, 1999. UCRL-VG-134167.

Wagner, A.V , Johnson, G.W., and Barbee, T.W., *High Energy Density Capacitors Fabricated by Thin Film Technology*, UCRL-JC-132316, March, 1999.

Johnson, G.W., Barbee, T.W., and Wagner, A.V., *Solid State Fireset Development (U)*, UCRL-ID-132882, Feb. 22, 1999.

Barbee, T.W. and Johnson, G.W., *High-Energy Density Capacitors for Power Electronic Applications using Nanostructure Multilayer Technology*, UCRL-ID-121972, 1995.

Johnson, G.W. and Ng, W., *Modeling and Testing of Nanostructure Multilayer Capacitors*, Engineering Research, Development and Technology, UCRL-53868-95, 1995.

Johnson, G.W., *Resistivity and Dielectric Constant of Four High-Explosive Compounds*, UCRL-ID-126853, March, 1997.

Johnson, G.W. and Teruya, A.T., *Data Report: Measurement of Radiation-Induced Voltages in High Explosives*, UCRL-ID-127011, April, 1997.

Back, N.L., et al. *X-Ray Induced Charge Separation, Radiation-Induced Conductivity And Electric Field Effects in Weapons*, UCRL-ID-128376, July, 1997.

Barbee, T.W. and Johnson, G.W., and Wagner, A.V., *Nano-structure Multilayer Technology Fabrication of High Energy Density Capacitors for the Power Electronic Building Block*, UCRL-JC-128759, October, 1997.

Wooldridge, J;Johnson, G W;Cassidy, K;Summers, L;Lewis, P;Gordon, S, *Raman scattering method for measuring HNO₃ concentration*, UCRL-ID-110984, 1992.

Dodson, K.E., Johnson, G.W., Holck, D.M., and McAvoy, D., *Pyrochemical Salt Scrub, in Isotope Separation and Advanced Manufacturing Technology Defense-Related Projects FY93 Annual Report*, UCRL-ID-115265, 1993 (UCNI).

U.S. PATENTS:

5,414,588, High Performance Capacitors Using Nano-Structure Multilayer Materials Fabrication (May 9, 1995).

5,486,277, High Performance Capacitors Using Nano-Structure Multilayer Materials Fabrication (Jan. 23, 1996).

5,568,255, Apparatus for Controlling the Scan Width of a Scanning Laser Beam (November, 1996).

5,731,538, Method and System for Making Integrated Solid-State Fire-Sets and Detonators (March, 1998).

5,742,471, Nano-Structure Multilayer Dielectric Materials for Capacitors and Insulators (April, 1998).

6,288,402, High Sensitivity Charge Amplifier for Ion Beam Uniformity Monitor (Sept., 2001).

6,437,342. Charge Amplifier with Bias Current Compensation (Aug., 2002).

7,277,644. Fade-Resistant Forward Error Correction Method for Free-Space Optical Communications System (Oct., 2007).

LICENSED TECHNOLOGIES:

Nano-Structure Multilayer Capacitors, 2007.