

Process, Instrumentation, Measurement-System Designer. Industrial/ Chemical/ Biomedical Process. Failure-analysis. Design Equipment to analyze the structure and composition of anything - across diverse products, in any location. *Delivering* solutions to technical problems; inventing new products, working with all levels from clerk to technician to executive.

Core Competencies

Measurement Instrument Design – Materials Testing	Product Introduction at Clinical Level	Process Design/ Improving-System Maintenance
Customer Interface	10+ years product design	9 US Patents
Project/ Team Management	Electro-mechanical process equipment design	Non-Destructive Evaluation: x-ray, magnetic, ultrasound, etc.

Skills

- Designer of Sensors for Industrial, chemical, scientific and medical systems; integrate with controls (PLC)
- Expert ANALOG design: Power Supply, High-Voltage, Sensors, Electro-optics, electro-mechanical, LASER Systems
- Patented Inventor – Optics, nano-Particulates, Tele-com, Vehicular Safety, pollution control
- Technical Writing – Reports, Patent Applications, Brochures, Policies, Web-pages – Concise and easy to read
- Invents, Designs, Deploys, Maintains Instruments, Sensors, Remote Sensing, Non-Destructive Analysis (NDE)
- Individual Contributor → Project-Leader/ Manager – from napkin to deploy
- NDE design, development, applications (x-ray, LASER, spectrographic, radiation, optical, magnetic, visual, etc.)
- Biomedical Electronics – Leadership, research, development, deploying and maintenance
- CAD capable – SolidWorks 7, ORCAD, LabView, COMSOL, OptiCAD, MathWorks
- Electro-mechanical and Chemical Systems – Robotics Sensors - Prototype to Production
- Repair any system or device using Scientific Method and Logical Trouble-Shooting; Root-Cause Failure Analysis
- Trades proficient: machine shop, welding, plumbing, refrigeration, AC/ DC systems, pneumatics, mechanicals
- Experienced with high-vacuum processes including electron-microscopes, Mass-Spec, electron-sources

Successes On a Global scale – Abbreviated List: **Comprehensive list at** http://msala.us/root/Homepage/Successes/Successes_Working.html

Perfection of HPFS LASER-line optics at the National Ignition Facility; designed scanning LASER interferometer
 Rescuing the \$2B Corning SMF28 Fiber Facility from patent infringement; designed on-line Coefficient of Friction
 Patented a gasoline-exhaust catalytic convertor that eliminates greenhouse gasses
 Founding a Non-Destructive Analysis lab, designing much of the equipment
 Saving \$3M loss/reservoir in Advanced Life-Sciences Genomics; using X-ray CT and Confocal Microscopy
 Sensor Package Design – Subterranean live Gas-Main Repair Robot; using EMAT Ultrasound and Spectroscopy
 Eliminated Platinum loss in Diesel Particulate Filters (DPF) saving \$100s/ filter loss
 Designed means to evaluate micro-reactors for small-scale chemical processing plants; using Flat-Plane X-ray
 Nano-particle Semiconductors; Invented means to manufacture in an atmosphere
 Patented Rear-Vision system twenty years before popular on today's Ford vehicles

Career Snap-Shot (9 US Patents; 13 applied) International Experience

Engineering Physicist, Theresa, NY – October 2013 to Present. Designing instruments and providing the means to fix scientific, technologic, process, production and business problems; pencil designs that today are not only making money, but a difference.

- Initial design and design for sensor package for *CISBOT*, a subterranean robot for the repair of *live* gas-mains for the Second Largest pipe-line in the United Kingdom, Scotia Gas Networks and ULC Robotics, NYC
- Development of a toxic-gas sensor for remote sensing by emergency crews

Manager, Biomedical Engineering Department, Samaritan Medical Center, Watertown, NY August 2011 – October 2013; operating a high-tech medical electronics department

- Only department to pass *JACHO* inspection without comments after 3 months on-job preparation
- Installed new physiologic monitors in Neo-natal Unit, Anesthesia and Maternity
- Installed new Varian *Acuity* Radiation Simulator

Sr. Research Scientist/ Instrument Engineer - Corning Incorporated, Corning, NY – August 1997 through March 2009. Nine Patents, publications, lectures, products-introduced, project-leadership, Community-Service

- Enabled completion of *National Ignition Facility* by designing materials-testing instruments for HPFS glass
- Eliminated patent-infringement against Japanese for optical-fiber production; saved \$2B business
- Invented catalytic convertor where exhaust is only CO₂ and water
- Designed instruments to measure *Diesel Particulate Filters*-failure and saved \$3,000/ filter Pt loss

Sr. Scientific Instrumentation Designer, Roswell Park Cancer Institute, 1984-1990

Military Service and Education

US Navy, Advanced Electronics, Honorable Discharge; Top-Secret Clearance (1981)

BS Biophysics, *SUNY at Buffalo*; Electrical Technology, *Erie County Community College*; Advanced Electronics, *US Navy Service School Command*, Great Lakes, IL

LEAN Green-Belt; Six Sigma White Belt

Conversant in German and French.

<http://msala.us> for long-version *Résumé*

Addendum:

Considered an expert by my peers of instrumentation design, Sensors and remote sensing; advise and instruct others in carrying out this work on a regular basis and am consulted by my colleagues and/or superiors in unusually complex situations.

1. Develop novel technology (materials/equipment/systems) that significantly extend the capability of existing technology.
2. Document the development process so it may be applied to IP or future projects.
3. Utilize writing tools such as *Microsoft Office*, *ADOBE Framemaker*, *Word-Perfect*, *Photo-Shop*, *SolidWorks* (for technical drawings), *OrCAD* for electronic projects, *OPTICAD* for optics, *Mathcad*, *LabView* and *COMSOL*
4. Develop solutions to mitigate or eliminate obstructions to project completion.
5. Preliminary research of projects to help determine feasibility
6. Interpret project requirements to formulate project plans to successfully execute projects.
7. Work across disciplinary boundaries in order to develop multidisciplinary solutions to complex problems.
8. Write proposals to secure and manage funding.
9. Because of the extensive experience in systems and device maintenance, I know about bad Service Manuals and how to write one with the pithy-plot of: Let's fix this with minimal pain to the Service Engineer and the Customer.
10. Number 10 WRT Operator's Manuals
11. Invention Disclosures; pre-Patent documentation
12. Contribute to project/program management functions to enhance team knowledge.
13. Lead engineering/scientific teams to execute projects safely, within budget, and on schedule.
14. Facilitate relationships between peers, sponsor organizations, key stakeholders, higher-level management, and industry to ensure engineering products are provided on schedule.
15. Develop briefings for the delivery of program information to government leaders and key groups
16. Lead conferences/meetings to discuss issues and influence decision making.
17. Provide data analysis, modeling, and test and evaluation.
18. Review design or project plans to assign tasks to other engineering/scientific functions.
19. Use advanced engineering/scientific techniques, requirements, methods, sources, and procedures in a specialty area to perform job functions.

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