

Name: Martin A. Sala

Title: Engineer - multidisciplinary

Contact: Email – salama@msala.us; `phone – (607)769-6385

Website: <http://msala.us>

CE 2017

Electronic Engineering, Reverse-Engineering, Instrument Design - Extreme Environments. Failure-analysis. *Helping deliver* solutions to technical problems, inventing new products, inspiring successes at all levels. Technical Writing that is accurate, understandable and enjoyable. Comfortable with *fix or die scenarios*.

Education:

SUNY Buffalo (NY); BA.

Erie Community College, Electronic Engineering

US Navy Service School Command, Advanced Electronics; Instruments and Communications

US Patents: 7. US Patents Pending 3; one as of 22 Nov 17

Top Secret Clearance, Crypto Endorsement, Inactive, BI 1977

Employment:

KraftHeinz/Polly-O Cheese, Campbell, NY. May 2017 – Aug 17. Designing, writing and presenting materials to train the Plant Maintenance Staff in the areas of electricity, electronics, **logical troubleshooting**, control systems, PLCs, and anything else required. Created materials for the labs and facilitated the labs. Provide hands-on maintenance to Plant processes when problem is beyond the staff. Reverse-Engineer *vintage* systems.

ABBOTT Laboratories, Princeton, NJ. Electronic Engineer. May 2015 – Aug 2016. Successful completion of assignment.

Electronic Engineering – Evaluate extant designs and reconcile with actual product (Point of Care Analyzer)

Technical Writing – Design, execution and documentation experiments of Hardware Verifications for FDA-510(k)

Consultant/ Self Employed, Theresa, NY. Instrumentation Designer. July 2009 – Present. Income-producing tasks between major-assignments

Reverse Engineering – electronic devices, mechanical systems, electro-optical systems

Root-Cause Failure Analysis

NDE System Design - applications (x-ray, CT, LASER, spectrographic, radiation, optical, magnetic, visual, etc.)

Remote Sensing

NDE Sensor Package Design – Subterranean live Mobile Gas-Main Repair Robot; using EMAT Ultrasound and Spectroscopy

Repair any system or device using Scientific Method and Logical Trouble-Shooting;

Expert ANALOG design: Power Supply, High-Voltage, Sensors, Electro-optics, electro-mechanical, LASERS

CAE capable – *SolidWorks 7, ORCAD*(analog & Digital Simulation), *LabVIEW, COMSOL, OptiCAD, Math Works*

Integrating *Lean, TQM, 6- δ* and *Common-Sense* into one consistent, User-friendly package to maximize results NDE

Trades proficient - machine shop, welding, plumbing, refrigeration, AC/ DC systems, pneumatics, mechanicals

Technical Writing – Reports, Patent Applications, Brochures, Policies, Web-pages

Samaritan Medical Center, Watertown, NY. Biomedical Engineering Manager. Aug 2011 – Oct 2013.

Managing a high-tech medical electronics department

Standing Inspections from JCAHO, NY-DOH, liability carriers

Insuring Safety and Proper Operation of all facility and clinic medical devices

Corning Incorporated, Corning, NY. Advanced Engineering Directorate, Sr. Research Scientist/ Instrumentation Designer. Aug 1997 – Mar 2009.

Founding a Non-Destructive Analysis (NDE) lab, designing much of the equipment

Reverse Engineering of *competitor's* and vintage systems

Nano-particle Semiconductors; invented means to manufacture *pure semiconductor in an atmosphere*

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 COF analyzer

Patented a gasoline-exhaust catalytic convertor that eliminates greenhouse gasses

Saving \$3M loss/reservoir in Advanced Life-Sciences Genomics; using X-ray CT and Confocal Microscopy

Eliminated Platinum loss in Diesel Particulate Filters (DPF) saving \$100s/ filter loss

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Military Service

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

US Navy Service School Command, Great Lakes, IL

LEAN Green-Belt; Six Sigma White Belt

EPA *Certificate 608*

Fluent in all aspects of English communication.

Conversant in German and French.

7 US Patents awarded, 23 Applications (see: http://msala.us/Patents_P1.html)

Core Competencies

Designs instruments and Sensors for unforgiving environments	Originates Cutting-Edge Solutions using novel optical, electronic and mechanical means	Medical Instrument Design, Repair and Maintenance
Independent Operations; Minimal Supervision	Solved last-ditch instrumentation problems on a Global basis	Analog Electronics Design, Vacuum Tubes, A to D, D to A, Discrete Devices
Technical Writing – Patents, User Manuals, Service Manuals, Funding Briefs	Reverse Engineering/ Post Mortems	R & D Project/ Team Management

Machine Shop Techniques including: Lathe, Vertical Mill, Drilling, Sheet-Metal Forming, Tapping and Assembly	Mechanical Drafting using SolidWorks 7	Design, prototyping and deployment of Hard-Wired and Virtual Instruments
	Woodworking Savvy with both Machine and Hand Tools (see: http://msala.us/ExamplesofWork.html)	Intimate with Naval Vessel Shipboard Systems including Propulsion, Electricity Generation and Communications
Oxy/Acetylene Brazing, Cutting and Welding; AC Arc Welding	Productions Machines as found in a at <i>Polly-O Cheese</i>	Process Improvement

Integrating an understanding of the Physical-Universe with the Practicality of an Engineer

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Opportunity Specific Addendum:

Considered an expert by peers performing instrumentation design, sensors and remote sensing; advise and instruct others in implementation of this work on a regular basis and am consulted by colleagues and/or superiors to aid with unusually complex situations.

1. Expert *Instrumentation design* for harsh application
2. *Analog Electronics* designer for sensor interface and discrete signal processing
3. Design of Optical Detectors and Systems for fluoroscopy, interferometry, radiation, elemental and organic detection and analysis
4. Hands-on experience with virtually all types of *Test Equipment* including: `scopes, spectrum analyzers, digital meters for V, A, Ω , P, Φ , W and so on;
5. Power Supply Design – linear and some switching
6. Mil-Spec/ NASA-Spec soldering trained
7. Extremely skilled practitioner of the *Logical Troubleshooting Method*; able to instruct others (please see http://msala.us/Machine_Repair/Logical%20Troubleshooting_1.html)
8. Understanding of *Communications Protocols* with the ability to learn and use others
9. Prototype and Deliver systems using CO₂, Ar, NdYAG and semiconductor LASERs; excimer LASERs
10. Reverse Engineering leading to Cost Reduction and availability of *vintage* components
11. Design, develop and deploy diagnostic instruments for use in industry and medicine
12. Evaluation, design, prototype and deploy of sensor integration, calibration, and signal analysis techniques
13. Demonstrated abilities to explain almost anything to anybody
14. Founded NDE Lab at Corning Incorporated: X-Ray CT, Laminography, SEM, LASER Confocal Microscopy, Ultrasound
15. Experience working with ISO requirements, GMP guidelines, FDA regulations, medical device design control, and manufacturing scale-up processes
16. Proposes electro-mechanical instruments and devices that address complex clinical and market needs
17. Design prototypes and feasibility models for proof of concept testing
18. Skilled with Medical Instruments: Design, repair, maintenance, PM and documentation
19. Extensive controls and motor and robot design
20. Comprehensive ability to communicate from Customer to Technician to Executive

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21. Prototype construction; PCB design (2-layer);
22. Machine-Shop savvy – Lathe, V-Mill, H-Mill, Grinders, Sheet-Metal Forming
23. Will take a project from concept, through Team development to Deploy

24. Chemistry and chemical-engineering competent
25. Provides design and production guidelines, requirements, and procedures to design and manufacturing engineers to sustain production-lines in adverse and extreme environments
26. Because of the extensive multidisciplinary experience in systems and devices, maintenance, using the Logical Troubleshooting Method and the *Scientific Method*, can quickly perform repairs.

27. Utilizes software tools such as *Microsoft Office*, *Word-Perfect*, *Photo-Shop*, *SolidWorks* (for technical drawings), *OrCAD* for electronic projects, *OPTICAD* for optics, *Mathcad*, *LabVIEW* and *COMSOL*

28. US Patent Applications: Research and write *pre-application Patent applications*
29. Develop novel technologies that significantly extend the capability of the existing technology
30. Writes proposals to secure and manage funding; *NIH*, *DoD* and *NASA*

31. Document the development process so it may be applied to IP or future projects
32. Develops briefings for the delivery of program information to government leaders and key groups
33. Designs Instruments that use μP for control and communication with Analog Sensors

34. Working knowledge of standards: FDA, ISO, USP, ANSI, ASME and so on
35. Interprets project requirements to formulate project plans to successfully execute projects
36. Contributes to project/program management functions to enhance team knowledge

37. Using Fundamental Engineering Theory, provide Experimental, design, reduction to practice of many NDE instruments including, UT, ET and varieties, X-ray, MRI, CT, microscopy, optical systems, spectroscopy, and Remote Sensing applications

38. Author and lecturer for places like *Woods Hole Oceanographic Institution*, *Autonomous Medical School* at Mexico City, conferences etc.
39. Leads engineering/scientific teams to execute projects safely, within budget, and on schedule

40. Expert using MS office, MSOS-XP^{Pro} and 7^{Pro} ; Word Perfect, ORCAD, SolidWorks and various network software and SERVER 2003

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Executing Science and Engineering on the edge of Magic