SR. ENGINEER / MANAGER

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SUMMARY

- "Hands-on" multilingual Sr. Mechanical Engineer with 10+ years Domestic & Multi-national experience in . . . .
- Systems Engineering, Integration & Test Design/Execution, Verification/Validation, Test/Measurement, MEMS/ /Nano, Product Quality/Reliability/Development/Design/Qualification/Introduction, Failure Review, Mfg. & Mgt.
- Tenacious to identify new ways to problem-solve/trouble-shoot Test, Design, Quality, Reliability & Mfg. Issues.
- Time-Proven to multi-task, streamline product development/test, increasing productivity & company profit.
- Led efforts implementing cost-saving ideas & Product / Productivity / Test / Yield / Mfg. improvements.
- Significant experience at both start-up organizations & well established companies.

EDUCATION & LANGUAGES

B.S. Mechanical Engineering, New Jersey Institute of Technology
M.S. Mechanical Engineering, New Jersey Institute of Technology
Perfectly Bi-lingual: Castilian & English. Read, understand & speak some Tagalog, Catalan & Mandarin.

MAJOR CAREER HIGHLIGHTS

LOCKHEED-MARTIN SPACE SYSTEMS, SUNNYVALE, CA **07/06~12/08**
Sr. Systems Integration* & *Reliability Test Engineer, Staff Lead

- ***Sr. Certified Test Conductor (CTC), Staff Lead*** for Space Systems Company; responsible for 'Integration, Functional Test & Verification' of small to medium-sized Flight Hardware: Components, PCB Circuit Cards, Electrical & Electro-Mechanical "UUT Black Boxes" comprised of science instruments & measurement elements, in various environments in the ***Flight Hardware Functional Avionics Test Qualification Lab*** with 55+ team members, working **80-100+ hour weeks**.
- Managed 1st shift daily Staff Meetings, based on pass-down from prior shifts coupled with continuous incoming work from Aerospace, Aeronautical, Astronautical & Military (Satellite/Spacecraft) Customer requests, which created an incredibly fluid, dynamic, fast-paced & ambiguous environment with frequently changing priorities, demanding I continuously re-prioritize the work distributed to Technicians/Engineers in the ***Flight Hardware Test Lab*** daily & during the day in order to meet the business needs of the many various Programs/Customers the Avionics Lab supported. Maintained focus & direction of all Tests to keep productivity of Lab high.
- Developed technical solutions to complex Engineering, Management, Lab & Test problems requiring regular use of ingenuity & creativity using Engineering/Problem Solving/Technical/Leadership/Analytical skills, forward thinking proactively anticipating & mitigating potential ***Flight Hardware Test Lab*** issues before they occur. **Ex. #1:** Streamlined the Turn-around time of the Lab increasing Efficiency/Productivity by working with IT & Lab Planner to establish a Job Submittal Requests for all LM Space Systems Customers via a web-based Job submittal/tracking/closure/feedback portal. **Ex. #2:** Streamlined the Test Preparation process by creating a standardized set of Test Prep. Documents/Binders for all "Flight Hardware" entering the Lab, irrespective of: the type/complexity of Flight Hardware, of the Testing involved, or of the Program Customers utilizing the Lab's Testing Services & Facilities. These efforts led to a ~15-20% faster turn-around time in Services/Productivity, yielding a savings of **$1.857M**illion/**Y**ear.
- Worked till end of 50+ year run of NOAA/NASA TIROS/DMSP satellite program.

MICROJET / JUST PRINT TECHNOLOGIES, TAIWAN **04/02~05/06**

- ***JUST PRINT Engineering / Test / Reliability Director, VP:*** Broad & diverse "hands-on" responsibilities in start-up Company in Taiwan. Involved with everything from Design to Engineering to Administration to Management. Provided Quality, Business, Technical & Leadership experience for the introduction of new products into European, Asian & USA markets. Just-Print patented products are the best in the world; Just-Print is most successful refill kit manufacturer worldwide.
- ***MICROJET Reliability / Test / Product Quality Engineering Director, VP:*** Departmental P&L responsibility, revamping MicroJet's Product Reliability/QA/QC Dept. Proposed/implemented a Test Department to improve the quality/yield rates of products such that quality improved in 2 years from ~40% to >90% yield; translating to a cost reduction & increasing yearly revenue (*and thus added profit*) of **~$3M**illion/**Year**, an achievement MicroJet Technology couldn't do in the 6 years prior.
- Implemented lean mfg. into MEMS/CELL & Product production. Partnered with CEO, CTO, R&D, Materials, Mfg., & sub-contracted Vendors to develop & optimize robust MEMS/CELL & Product Mfg. processes: from vendor raw materials (4", 6" & 8" poly-crystalline & mono-crystalline Si wafers, metal deposition films, photosensitive polymers, etc.), MEMS/CELL IC FAB (class 100), Excimer Laser, Diamond Saw, Nozzle Plate Lamination, TAB Wire Bonding, Mfg. & Packaging.
- Defined & implemented strict SPC standards, methods & procedures for testing, characterizing & evaluating the Quality/Reliability of the company's MEMS/CELLs & Cartridge products: daily sampling Audit, Test, Autopsy & Root Cause identification of defective product from factory as well as of Customer Returns. Implemented Closed-Loop processes to troubleshoot, debug, identify root cause failures & take corrective actions to fix & eliminate or otherwise minimize the impact of QA issues. **MicroJet:** 2 year contract. **Just-Print:** Once Just-Print turned a profit, decided to return back home to USA.

AGILENT TECHNOLOGIES / HEWLETT-PACKARD, SANTA CLARA, CA **06/00~09/01**

- ***Sr. Product Reliability / Test Engineer***: Designed/scratch-build 64-bit Server test-beds for exercising Agilent HBAs in real-time simultaneously varying Fiber Optic Communication/Current/Voltage/Temp./Humidity/Altitude/Vibration; saved division **~$42K/Year**. Agilent Technologies was being spun-off from Hewlett-Packard. Laid-off 3 days after 9-11 attacks.

HEWLETT-PACKARD, CORVALLIS, OR & BARCELONA, SPAIN **05/90~05/00**

- ***Sr. Design Development Product Test/Qualification Engineer & Sr. Product Reliability (NPI) Systems Integration/ Test Engineer:*** Developed/implemented new design concept of "Worse Casing" combined w "AFR" (Annualized Failure Rate) during prototype tests, a new process/technique for delivering robust products to market fast; resulted in reduced AFR for new DesignJet color Plotters from 120% to 35%, translating to a savings (*added profit*) of **$25M**illion/**Year**.

- ***Specialist Lead Coordinator for Qualification of Change*:** At HP InkJet Supplies Business, from product concept/inception till product maturity running high-volume Manufacturing at multiple Worldwide sites, these efforts have contributed to an overhead Product/Manufacturing cost reduction of ~80% over a 7-year timeframe translating to a Worldwide savings (*and thus added profit*) of **$3.88B**illion/**Year.**
- Investigated competition & based on public knowledge & internal Competitive Analysis, developed patents to protect HP's marketshare. Primary author of patent for a refill method for InkJet Cartridges used in HP DeskJet Printers. Utilizing said patent assisted HP as Defendant in San Jose District Court (North District of CA) against Nu-Kote Intl & HP won; in 1st Judicial decision (Aug '97) HP recaptured ~20% of Worldwide InkJet MarketShare equal to **$11B**illion & HP stock market cap rose ~35% in 1 week (NYSE: HWP Aug '97) equal to **$10.90B**illion.
- Assisted HP in pursuing/winning a suit as Plaintiff against Pelikan Inc. for patent infringement. Provided key evidence of historical HP Technical Data, Lab Notebooks with Design/Test concepts, & QA Reports generated & published since 1990. HP won recapturing 2% of its Worldwide InkJet Marketshare equivalent to **$1.1B**illion.

CERTIFICATIONS, KNOWLEDGE, SKILLS, TRAINING

TECHNICAL:

- **JEDEC** standards
- Mean Time Between Failures **– (MTBF)**
- **Gage R&R** (Accuracy & Precision)
- Root-Cause / Fault Tree / Post-Partum Analysis
- Stage-Gate / **Aerospace** Product Development Cycle
- Kepner-Tregoe: Systematic Problem Solving
- Analysis & Design of Dynamic **MEMS** Systems
- **MIL STD 202:** Test Method for Electronic/Electrical Parts
- **ANSI Y14.5M:** Geometric Dim. & Tolerancing
- Cause & Effect Analysis (Fishbone Analysis)
- Failure in Time Rate **– (FIT** to **MIL-HDBK-217F)**
- Design for Manufacturability / Reliability
- Kaizen / Taguchi Methods
- **PDCA:** Plan, Do, Check, Act
- Analysis/Design of Electromechanical Systems & Networks
- **CMMI:** Capability Maturity Model Integration, Level 5
- **5s:** Organizing Shared Workspace **–** Seiri, Seiton, Seisō, Seiketsu & Shitsuke
- **ASNT TC 1A:** Practice, Personnel Qualification & Certification in Non-Destructive Testing
- **EMI/EMC:** Intl. Regulatory Electromagnetic Interference/Compliance (Emissions/Immunity) & Safety Standards Testing
- **HALT (H**ighly **A**ccelerated **L**ife **T**ests) / **HASS™ (H**ighly **A**ccelerated **S**tress **S**creens) & Burn-In of PCB boards Testing
- **Environmental/Climatic Tests: Space** Simulation, T·Vacuum/T·Cycle/T·Shock, Acoustic, Shock/Vibe, Static Load, Mass Properties, Accelerated LIFE & Archival Test, Corrosion, Dust, Rain, Salt-Fog, Temperature/Humidity/Altitude, etc.
- **MIL STD 1686, EOS/ESD S20.20, ΝΛSΛ 8739.7:** ESD, Electro-Static Discharge Control, Re-Certification & JCI Handling
- **DoD 3235.1-H:** Test & Evaluation of System Reliability, Availability, & Maintainability
- **FED STD-209E:** Airborne Particulate Cleanliness Classes in Clean Rooms & Clean Zones

QUALITY, RELIABILITY, TEST & DATA ANALYSIS:

- **ISO** 9000, 9001:2000, 10012, 14000, 18000
- **ΝΛSΛ GSFC 431-REF-000370:** Performing a **FMEA**
- Correlation Techniques; Factorial & Time Series Analysis
- Adv. Probability/Statistics; Analysis of Variance **(ANOVA)**
- Reliable System Design, Mfg. & Test to **Six Sigma (±3σ)**
- **TQRDCE** of Suppliers / Vendors & **TQM**
- **LM21:** Lockheed Martin's Quality Assurance Program
- **ΝΛSΛ JPL D-5703:** Reliability Analysis Handbook
- Sampling Theory; Design of Experiments **(DOE);** 5 Why?
- Applied Calculus/Math; Gage R&R; x-bar; r-bar; **MiniTab**
- Weibull, Pareto, Gaussian, Control Chart, Cp/Cpk, etc.
- **MIL STD 1629A:** Performing a **FMECA**
- **SPC** Tools in CELL, FAB, Continuous Flow & **LEAN** High Volume Batch Manufacturing Processes
- **Statistical Principals in Experimental Design:** Statistical Models, Test Plans, Test Designs, Data Collection & Analysis
- **MIL STD 45662:** Establish/Maintain Calibration/Quality Procedures to control Accuracy of Test/Measuring Equipment

HARDWARE:

- **HP/IBM:** PC & Workstation
- **HP:** InkJet & LaserJet Printers/Plotters; Scanners
- **Imaging:** Thermal, X-Ray & Magnetic Resonance **(MRI);** Infrared/Thermal Imaging Cameras,
- **HP/Agilent Infinium Test & Measurement:** Arbitrary Waveform Generator, Capacitance Meter, CW Counter, Digital Multi-Meter, DVM, EMF-Meter, Frequency Analyzer, Frequency Counter, Frequency Synthesizer, Function Generator, Digital Pattern Generator, LCR-Meter, Logic Analyzer, Mixed Signal Oscilloscope, Network Analyzers, Power Sensors, Power Supply, Pulse Generator, RF Power Meter, RF Probe, S-Parameter Test Set, Sampling Scope, Signal Generator, Signal Tracer, Spectrum Analyzer, Transistor Tester, Wheatstone Bridge, Cable Tester, Hipot/Continuity Tester, Data Acquisition Equipment, Digital & Graphical Strip-Chart Recorders, etc.
- **Surface Analysis / Chemical Detection:** AES Aüger Electron Spectroscopy; SEM (Scanning Electron Microscopy); SIMS (Secondary Ion Mass Spectrometry); ESCA=XPS (X-Ray Photoelectron/Photoemission Spectroscopy); EDS (Energy-Dispersive X-Ray Spectroscopy); Standard & Optical Microscopes
- **Metrology:** Sputter depth profiling, Curve Tracer, Cross-sectioning, UniScan Laser Profileometer, Alpha Stepper Stylus Surface Profileometer, Optical Shearing Microscope (OSM), HP Pulse/Pattern Generators; HP Dynamic Light-based & HeNe gas Optical Laser measurement/calibration systems; HP/Agilent Linear Interferometers; HP/Agilent Linear Retroreflectors & Physical Optics for opto-mechanical assembly & alignment

SOFTWARE:

- Oracle, Informix, SAP, EPDM & LiveLink databases
- Lotus 123/AmiPro, Lotus Notes, Lotus CC:Mail
- Visual Basic, SQL, HTML, XML, Java
- VersaCAD, MathCAD, AutoCAD-2000, ME30
- Automated Test Systems: GBIP, VME, cPCI, PXI
- Win95/98/NT/2K/XP/Vista & Mac OS X & UNIX
- Expert at MS Office Suite, MS-Project (macros, pivot tables)
- Adobe Acrobat & Acrobat Editor pro
- SDRC I-DEAS, ANSYS, CADAM/CATIA
- MS-Access & Info-Access
- Test Stand Hardware Control: LabView, VXWorks, CVI, C++, UNIX, X-Windows & LMSTAR

MANAGEMENT & LEADERSHIP:

- The Challenge of Leadership
- Management of Technological Organizations
- Commercializing Science & High Technology
- Managing Human Capital: Keeping Moral Robust
- Employee Assessment & Career Development
- Managing Innovation & Product Development
- Entrepreneurship in a Technological Environment
- HP-Way Values

PAPERS, PATENTS & PUBLICATIONS

- ***M.S. Thesis:*** *"Analysis & Design of a Fully Integrated Closed-Loop System-on-a-Chip Controlling an Electro-Mechanical (ElectroStatic:Capacitive–to–Piezoresistive) MicroValve Regulating an External MicroFluidic Flow, Machined from Silicon Wafer using novel* ***MEMS*** *&* ***Nano*** *Fabrication Techniques".* NJIT College of Engineering. ***Patents Pending on M.S. Thesis***
- ***Hewlett-Packard Company, Thermal InkJet Patent # 5 680 164:*** *"Five Refill Methods & Apparatus for the Black TIJ2.0 Family of Hewlett-Packard Thermal InkJet Print Cartridges".*
- ***Patents Pending, submitted to US Patent & Trademark Office, Washington, D.C.:***
  - *"Full Spectrum Enhanced Nano-Photovoltaic Solar Cell with Near Perfect Responsivity & Conversion Efficiency, using novel MEMES/Nano Techniques"*
  - *"High Efficiency Electron Carrier to Photon Carrier Energy Converter"*
  - *"Usable High Energy Transmission via High Efficiency Fiber Optic Energy Cable"*
  - *"Deployable, Full-Spectrum Electromagnetic Radiation, High Efficiency Photonic Collector, Concentrator & Light Management Transport System, using novel MEMS/Nano Techniques"*

ADDITIONAL WORK HISTORY

NEW JERSEY INSTITUTE OF TECHNOLOGY, *NEWARK, NJ*

- ***Department of Mechanical Engineering, College of Engineering*** **'90 & '91**
  - ***Graduate Teaching Fellow:***
  - Taught "Engineering Graphics" including VersaCAD to Engineering Students. Proctor exams/grade assignments.
- ***NJIT pre-Engineering Internship Program*** **'85, '86 & '87**
  - ***UnderGraduate Teaching Assistant:***
  - Provide tutoring in "Calculus", "Physics", "English" & "Chemistry" courses to High School graduates in the NJIT pre-Engineering Internship Program for incoming Freshman Students. Proctor exams/grade assignments.
- ***Department of Chemistry, Material Science & Chemical Engineering; College of Engineering*** **'85 & '86**
  - ***Teaching Assistant – Chemistry Learning Center:***
  - Provide "Chemistry" Mentoring & Tutoring to Freshman & Sophomore NJIT Engineering students, in the Audio & Visual learning portion of their Chemistry & Material Science Undergraduate curriculum.

PROFESSIONAL ORGANIZATIONS / SOCIETIES, HONORS, AWARDS, CERTIFICATIONS

- ASME: American Society of Mechanical Engineers
- Undergraduate Honors: Dean's List
- BS/MS Honors Program
- "Pi Tau Sigma": Π Τ Σ –ASME's National Mechanical Engineering Honor Society
- ASME's National Honor Society: Π Τ Σ
- Graduate Honors: Dean's List
- Graduate Scholar/Fellow: Teaching Assistantships

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