

Matthew G. Saroff, E.I.T.
123 Embleton Road
Owings Mills, MD 21117
Telephone: (410)356-1046
E-mail: msaroff@pobox.com

Objective

To undertake the responsibilities and challenges of a position in project-oriented engineering. The position would ideally incorporate project management, problem solving and technical innovations.

Special Skills

Degree: B.S., Mechanical Engineering
CAE Packages: Catia, Pro-Engineer, SolidWorks, ANSYS, AutoCAD, Anvil 5000, CadKey
Languages: FORTRAN, Pascal, BASIC, APL, DBASE III
Platforms: Windows, Unix, Linux, VMS (VAX), CDC NOS (Cyber 170), MS-DOS, Macintosh
Other Software: PageMaker, Interleaf, Microsoft Word, Excel, Power Point, Microsoft Project
Other: Secret Clearance (inactive), Project Direction, Geometric Dimensioning and Tolerancing, ISO 9000, FDA Regulations, Rapid Prototyping

Professional Employment

October 2008 – July 2009

Mechanical Engineer

Becton Dickinson Diagnostic Systems, Sparks, MD (Contract Temporary)

Responsibilities: Conceptual design, mechanical analysis, and vendor liaison for robotic PCR technology based DNA test instrument, and bench top TB test device.

Achievements: Designed seismic stand for TB test system

Designed reagent foil cover cutter tool to reduce pipette consumption and increase throughput on robotic system

Procedures: Use of Rapid Prototyping (Stratasys® Dimension® Elite 3-D Printer) to validate and test design concepts design

Designed and performed laboratory study and issued report documenting mechanical and thermal properties of existing and improved sample tube

Solicited vendor input and bids

Design and detail structural and cosmetic components for medical test equipment

Using FEA to verify design

Generating and distributing report documenting performance capabilities of improved sample tube.

Conducting and presenting trade study on reagent foil cover cutting tool

November 2007 – August 2008

Mechanical Engineer

Energy Solutions, Laurel, MD (Contract Temporary)

Responsibilities: Design and analysis for nuclear decommissioning projects

Achievements: Developed remote access techniques for component replacements

Confirmed dimensional requirements for video and ultrasonic sensors

Developed guides to allow cable controlled motor assembly to reliably interface with drums on a production line

Released initial drawings for high temperature sintered metal filter installation

Procedures: Researched counterweight systems for waste fill-head deployment

Confirmed compatibility for gasket materials

Checking drawings and specifications

Modeling assemblies and mechanisms in SolidWorks

Determined pressure drop and worst case operation conditions for sintered metal filters

Performed seismic analysis equipment installations

January 2007 – November 2007

Mechanical Engineer

Becton, Dickinson Diagnostic Systems, Sparks, MD (Contract Temporary)

Responsibilities: Conceptual development for Mid-volume Automated eXtraction (MAX) bench top integrated robotic real-time amplified DNA assay system

Achievements: Developed low cost unit dose concept for MAX System
Developed prototype ergonomic tool for Micro-Probe reagent disposable
Developed extractor with improved kinematics

Procedures: Interfaced with vendors to confirm interfaces to robotic equipment
Developed concepts and layouts for automated sample identification and tracking
Participated in configuration evaluation using Pugh decision matrix
Reviewed timing issues for testing sequence
Investigated constraints for fiber optic routing
Optimizing geometry to maximize throughput and minimize the possibility of cross contamination
Developed MAX configurations with different robots from different vendors.
Confirmed required reagent quantities
Designed improved guide plate for Lysis reagent trough
Developed concepts to address wire chafing issues on Viper SP

August 2003 – December 2006

Mechanical Engineer

BAE Systems Ground Systems Division, York, PA (Contract Temporary)

Responsibilities: Support and concept development for the recovery and maintenance vehicle (FRMV) of the Future Combat Systems (FCS) family of armored vehicles

Achievements: Determined performance and preliminary size for lifting apparatus
Oversaw trade study of oxygen generation system for cutting and welding
Developed space saving actuator arrangement for vehicle crane
Developed stowable fuel tank system to comply with air mobility requirements

Procedures: Participated in trade study between rotating and fixed lift concepts
Researched specifications and oversaw study verifying C-130 transport capability
Conducted weight and power surveys of vehicle
Performed preliminary mechanical analysis of lifting systems
Supervised preliminary layout of turret electronics
Reviewed signature and survivability issues
Developed recovery and maintenance tool list
Developed composite stowage pods for external equipment

December 2002 – August 2003

Mechanical Engineer

General Dynamics Amphibious Systems, Woodbridge, VA (Contract Temporary)

Responsibilities: Supported prognostics effort for AAAV (Now EFV) Marine Corps landing craft
Documenting requirements flow down from system specification documents
Supporting fault characterization test plan

Achievements: Incorporated vendor feedback in finalizing critical item definition specification

Procedures: Participated in System Requirements Review
CAD modeled for space claim and documented vehicle impact of prognostics system
Identified long lead hardware and software for prognostics
Documented existing specifications, sensors, and signals on vehicle systems and delivered data to subcontractor developing system hardware
Performed business case and total cost of ownership (TCO) analysis for a vehicle prognostics system and for an online oil monitoring system
Refined program management plan
Supported wireless and self powered sensor demonstrations
Developed concepts to eliminate water trap in vehicle APU exhaust

October 2002 – November 2002

Mechanical Engineer

EG&G Ocean Systems, Ijamsville, MD (Contract Temporary)

Responsibilities: Developed improved version of Advanced Development Soil Sampler (**ADSS**), an airborne soil sampling system deployed from Remotely Piloted Vehicles (**RPVs**)

Achievements: Reduced ADSS Diameter by 25%
Reduced ADSS Part Count by 40%
Developed fin deployment mechanism

Procedures: Investigated low friction coatings with regard to possible sample contamination
Investigated COTS material handling systems

March 2002 – June 2002

Mechanical Engineer

Saft America, Cockeysville, MD (Contract Temporary)

Responsibilities: Design, layout, and packaging of Lithium Ion batteries for defense and space applications for Demonstration of Autonomous Rendezvous Technology (**DART**) satellite and Reconnaissance, Surveillance, Targeting Vehicle (**RST-V**) hybrid vehicle systems

Achievements: Developed Drawing Package for **DART** batteries
Did preliminary layout for ruggedization of battery parts for **RST-V**
Liaison with customer to refine requirements

Procedures: Weight and volume roll up to confirm compliance with customer specifications
Thermal analysis of electrical components
Evaluated packaging, isolation, and bussing schemes for **RST-V** battery packs

June 2001 – December, 2001

Senior Mechanical Engineer

Raytheon C³I Systems, Towson, MD (Contract Temporary)

Responsibilities: Design, analysis, and specification review for Successor Identification Friend or Foe (**SIFF**) naval interrogator system for the Ministry of Defence of the UK

Achievements: Conducted mass, volume analysis for unit
Analyzed thermal requirements for system, determined optimum cooling method, set criteria for fan, determined fan requirements and location

Procedures: Reviewed Specifications for presentation at preliminary design review
Verified mounting configuration compatibility with existing platform for retrofit
Established criteria for reuse of existing line replaceable units (**LRU**) in new unit
Participated in audit to ensure that handling of documents with foreign classification in accordance with US security standards
Evaluated antenna and radome placement issues

October 2000 – May, 2001

Senior Mechanical Engineer

Varo, LLC, Garland, TX (Contract Temporary)

Responsibilities: Mechanical design of power supply (**PPS**) for naval vertical launch system
Developed qualification test procedure for verification of suitability of **PPS** design
Redesigned battery box of TOW missile Improved Target Acquisition System (**ITAS**)
Developed time tables for bids

Achievements: Achieved a 60% cost reduction on cast **ITAS** battery box as compared to predecessor
Verified mechanical durability of test equipment for **PPS** qualification test

Procedures: Performing tolerance and mechanical analysis for military electronics package
Replaced conventional paint with corrosion resistant powder coat technology

March, 2000 – September, 2000

Mechanical Engineer

Raytheon Systems Company, Richardson, TX (Contract Temporary)

Responsibilities: Mechanical redesign of Tactical Communications Processor (**TCP**) satellite communications terminal used for secure networks on Rivet Joint (RC-135) aircraft and ground stations for the Big Safari program

Achievements: Achieved 80% reduction in assembly touch labor compared to previous TCP unit
Achieved 90% cost reduction for enclosure through advanced casting techniques

Procedures: Replaced wiring harnesses with flexible circuit board assemblies
Replaced custom processor with commercial off the shelf (**COTS**) single board PC
Incorporated inherent red/black (restricted/unrestricted) data per Tempest standards
Verified unit assembly and cooling through solid modeling and stereo lithography
Replaced paint with a powder coating process which increased durability, reduced cost, and eliminated hazardous waste issues
Designing power and fiber optic interconnects between red and black sides of TCP

February 1999 – February 2000

Mechanical Designer

Lockheed Martin Missiles and Fire Control, Grand Prairie, TX (Contract Temporary)

Responsibilities: Developed concepts for **LIMAWS-R** helicopter transportable artillery rocket system
Developed production drawings for **HIMARS** lightweight rocket artillery system
Incorporated engineering changes in radiator system for international space station
Developed fixed emplacement concepts for **PAC-3**, **MEADS**, and **Arrow** surface to air missile systems

Achievements: Designed simplified mounting system for missile canister

Designed **PAC-3**, **THAAD**, and **Arrow** ballistic missile defense system installations

Procedures: Weight reduction for igniter retention system, and designed field modification kit
Produced production drawings for manufacturing and sketches for prototype effort

September 1998 – December 1998

Mechanical Engineer

Raytheon Systems Company, Richardson, TX (Contract Temporary)

Responsibilities: Repackaging antenna components in stowed transport configuration
Designing brackets to accommodate parts on transport vehicle

June 1998 – September 1998

Mechanical Engineer

Montgomery Kone Corporation, McKinney, TX (Contract Temporary)

Responsibilities: Designing standardized and custom passenger and freight elevators installations in response to customer needs

March 1996 – June 1998

Mechanical Designer

Lockheed Martin Vought Systems, Grand Prairie, TX (Contract Temporary)

Responsibilities: Developed modular canister for **MEADS** surface to air missile to allow use of existing Munition;

Designed modifications for navalization and commonality in **VT-1** surface to air missile used in Thomson-CSF **Crotale NG** system;

Developed all terrain stabilizing gear for light weight Patriot Launcher;

Achievements: Designed simplified connection system for missile canister

Evaluated composite materials for missile canister

Documented test history to show progress of missile over time

Designed system to tether igniter and prevent damage to ship structure

Resolved high-speed dynamic loading issues

Participated in verification and testing

Designed and resolved producibility issues on light weight navalization kit

Procedures: Weight reduction for igniter retention system

Designed field modification kit

Determined part and assembly weights

Recovered archive files from legacy system

Produced production drawings for manufacturing and sketches for prototype effort

Arranged recovery of archive files from legacy system

Designed kit for field modifications

February 1994 – March 1996

Locomotive Structures Engineer

General Electric Transportation Systems, Erie, PA (Contract Temporary)

Responsibilities: Developing structure, ducting, and cabling for locomotives

Achievements: Lead engineer for 6000 HP AC locomotive blower cab
Directed design of blower cab, achieved 50% part reduction over previous design
Supervised construction of six prototype blower (four constructed in-house and two constructed at an outside vendor) to verify assembly and productivity issues for both internal manufacture and outsourcing
Saved 80% of cost on components of existing products by controlling dimensions to allow for more economical manufacture
Participating in product wide cost reduction efforts as part of a "Tiger Team"
Member of cycle time reduction team

Procedures: Researching weight reduction methods through composite materials and FEA
Investigating replacement of conventional fasteners with advanced adhesives
Researching and resolving ergonomic, human factors and related safety and maintenance issues in accordance with ISO 9000
Following construction of prototypes and verifying producibility
Verifying structural integrity and compliance with internal design guides, federal standards (FRA), and generally accepted railroad practice (AAR)

November, 1993 – February, 1994

Mechanical Designer

Rockwell International, Command and Control Systems, Richardson, TX (Contract Temporary)

Responsibilities: Designed MilStar data terminal installation in HMMWV (Hummvee) for military program

Achievements: Confirmed fit on existing vehicle through construction of mockups

Procedures: Developed part structures
Confirmed part counts
Determined part weights
Released components for manufacture

June, 1993 – September, 1993

Product Engineer

Will-Burt Corporation, Orrville, Ohio (Contract Temporary)

Responsibilities: Developed remote control light pointing system for improved flood light system

Achievements: Reduced unit cost by 50% and increased unit reliability by 40%
Determined and resolved possible patent conflict
Reduced product envelope to conform with military requirements

Procedures: Product Design
Prototype concept, construction, and verification
Vendor liaison
Consulting with customers for comments on earlier version of system

April, 1992 – March, 1993

Designer

Stewart and Stevenson, Tactical Vehicle Systems, Sealy, Texas (Contract Temporary)

Responsibilities: Designed truck components, assemblies, and installations in accordance with ANSI Y14.5M and DOD 100 for new truck design for the US Army

Achievements: Determined that throughput on DOS work stations running Anvil 5000 could be increased by 500% by changing system setup

Developed frame structural layout used for installation on all models

Resolved cause of conflict between network and disk maintenance software

Designed forging to replace weldment, increased durability and lowered costs

Procedures: Designed, detailed, and checked interface for components

CAD training

Researched conversions between European and US specifications

Reviewed outside vendor CAD drawings

February, 1991 – October, 1991

Design Engineer

Jarvis Products Corporation, Middletown, Connecticut

Responsibilities: Designed and detailed meat packing equipment and machine tools

Procedures: Designed parts

Modified existing parts for new applications

Designed and assembling prototypes

Developed a product and part structures

Liaised with vendors

Drew parts for use in publications

Projects: Automatic foot shear, designed lower frame, hydraulic and sterilizer assemblies, called out product structure, produced assembly drawings for shop floor reference, confirmed tolerances and clearances

Dehider blade regrinder, dubbing assembly prototype

Horn Cutter, sterilizer unit, reverse engineered from purchased product

Bung dropper, redesigned blades for improved durability

May, 1990 – January, 1991

Production/Assembly Mechanic (Contract Temporary)

Digital Equipment Corporation, Westfield, Massachusetts

Responsibilities: General factory work

Procedures: Operating Press brakes, CNC punches, riveters, spot welders, inserter machines, and grinders to manufacture sheet metal computer enclosures

Quality control, parts inspection

August, 1989 – September, 1989

Designer/Drafter (Contract Temporary)

National Metal Industries, Springfield, Massachusetts

Responsibilities: Sheet metal design and drafting

Procedures: Designed and drafted sheet metal components for a Xerox engineering copier stand in conjunction with finalizing design of the copier

February, 1989 – May, 1989

Plant Engineer

Judd Wire Inc., Turners Falls, Massachusetts

Responsibilities: Facilities Management

Procedures: Liaison with architects for plant expansion

Proposed and researched air make up system for shop floor to increase heating and exhaust capabilities

Tested of scrape and print durability testing apparatus

Designed extruder flange and throat for compatibility with existing systems

Designed hazardous waste containment area to comply with EPA regulations

December, 1987 – November, 1988

Staff Engineer

Architects, Inc., Northampton, Massachusetts

Responsibilities: Designed HVAC, plumbing, electrical, and fire protection systems

Procedures: Researched CAD/CAM system and FAX system and reviewed vendor bids.

Computer and software problem trouble shooting

Staff computer training

Documentation of computer applications for staff

Site inspection and review regarding the feasibility of renovation

Liaison with consulting engineer

Technical research in reference to state codes

Projects: Mercy Hospital Physicians' Building, Springfield, Massachusetts

Rutland Heights Hospital survey, Rutland, Massachusetts

Bay State Medical Center renovation, North Adams, Massachusetts

Goshen Fire Station, Goshen, Massachusetts

Professional Organizations

American Society of Mechanical Engineers (ASME)

Education

BSME, University of Massachusetts, 1987

Liberal Arts Curriculum, Hampshire College, Amherst, Massachusetts, 1980-1982

Honors: Engineering Teaching Assistant, U. Mass, CAD/CAM Course 1986-1987

Additional Experience

Conference Chairman, ARISIA Speculative Media Conference 1990, 1991, Organized conference, incorporated as not for profit, Assembled staff, Supervised event programming, Drafted and implemented budget

Senator, Student Government Association, University of Massachusetts, 1985 - 1987

Rents and Fees Committee, University of Massachusetts Student Government Association audited University Trust Funds

Conference Director, NOTJUSTANOTHER Con I & II, Amherst, Massachusetts, 1985, 1986

Representative, Community Council, Hampshire College, 1981 - 1982

Society for Creative Anachronism - Received regional award for design and construction of Roman Armor (Lorica Segmentata)