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Resume of John J. Hagerty (Jack)

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LinkedIn Profile
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SUMMARY

I am a mechanical design engineer with experience in aerospace, robotics/automation, high vacuum systems, semiconductor equipment and medical device development. My career thus far has covered a wide range of industries (as outlined below) giving me great breadth of experience. I am also quite adept at writing (technical and popular).

CERTIFICATIONS

Certified SolidWorks designer
LinkedIn Ranked in Top 1% of Recommended Engineer
CCR registered government contractor (satisfies “Small Business Set-aside” requirement)
Certified in GD&T, UC Berkeley Extension
SME Certified Manufacturing Engineer in Robotics. Certificate #1909672
BSc. ME, UC Berkeley, 1975

SKILL SET

High Vacuum/Semiconductor: System design, chamber design and manufacture, component design, tooling design

Robotics/automation: Workcell design and fabrication, system integration, end effector (robot hand) design and integration. Customized integration of (normally) incompatible systems.

Medical Devices: Process design and characterization, component design and integration, wide range of testing from simple component functionality to full scale microbial challenge to FDA standards

General mechanical design: Drawing clean-up and documentation. Breakout drawings from layouts using GD&T.

Documentation: Wide range of documentation skills from drawings (in SolidWorks and AutoCAD), to protocols, procedures, reports, etc., in a wide range of word processors. Fluent in many different industrial standards: FDA, ASTM, SEMI, etc. Graphic skills in PhotoShop and several layout programs (MS Publisher, Adobe InDesign, etc.).

Crossover skills: Many projects used skills from my different areas of expertise, e.g. a robot-based quadriplegic office environment system for the VA that had to use both robotics and medical systems combined with a large amount of ergonomics.

PATENTS

US Utility Patent 5,315,726: *Multipurpose Convertible Furniture Assembly*. Not named on patent. Acted as consultant to re-write the patent specification (it had been denied previously). Patent granted on basis of re-write.

European Patent EP 1308986 B1: *Plasma Etch Reactor With Dual Sources for Enhancing Both Etch Selectivity and Etch Rate*. Named as co-inventor. Based on work done while at Applied Materials (patent holder).

US, Utility Patent Pending (Application #13773129): *Method and Apparatus for Reducing Organic Waste by Rotary Desiccation*. Based on own work at R-NT.

Thoratec Corp: Six patent applications filed based on work done in R&D (in process)

EPLOYERS AND CONSULTING CLIENTS (Partial List)

Stryker Endoscopy, Pro Engineer Portal, Triple Ring Technologies, Thoratec Corp, Terumo Medical Corp, Applied Materials, Lam Research, Clorox Services Company, Pacific Communication, Inc, Campbell Rocket Works, Working Machines Corp, Equipe Technologies, Fairweather Thermal Platforms, Sierra Technology Group, SysTech, Semicore Equipment, Quester Technology, Inc., TSC Corp., Advanced Cybernetics Group, HSD Engineering, Northwest Mechanical Design, Ion Systems, Scepter Scientific, Martin Borenstein, AIA, U.S. VA, Center for Design Research, Shrader Scientific, U.C. Berkeley, Document Imaging Storage Corporation, High Vacuum Apparatus Mfg, Inc., Bots, Inc., Motorola, Inc., Litton/Integrated Automation, KMI Energy, Apple Computer, Inc., Applied Robotics Technologies.

EXPERIENCE

Experience is listed in reverse-chronologically by end date and noted as to whether client or direct employer

Client: Stryker Endoscopy, San Jose, CA **2017 - 2018**

Performed V&V testing on the next generation of endoscopic camera heads and related peripherals. Design and build the fixtures, developed the test methods, wrote the protocols, performed the tests, analyzed the data and wrote the reports.

Client: Pro Engineer Portal, Bretwood, CA **2017**

Senior Mechanical engineer for automated eye examination device that combined three table-top, automated eye examination machines into a quasi-automated kiosk for use in non-clinical settings (e.g. airports and shopping malls).

Client: Triple Ring Corporation, Newark, CA **2017**

Mechanical engineering and test support for development of an automated roadside “breathalyzer” unit for detecting THC.

Client: RML-NexTech, Livermore, CA – Chief Engineer **2009 - Current**

This is my own company which I set up to design, develop and manufacture an organic waste processor. It is currently in statsis while development funding is arranged.

Client: Semicore Equipment, Livermore, CA – Contract Engineer/Designer **1997 - Current**

A steady client for 20 years, mostly deposition system tooling design.

Employer: Thoratec Corporation, Pleasanton, CA **2013 – 2016**

Senior R&D engineer working in various departments:

New Technology Development department, worked on a Transcutaneous Energy Transfer System (TETS) to transmit power (several Watts) through the skin to an implanted HeartMate II™ pump.

Product Support R&D: During a forensic investigation, created an implantable bearing imaging system for the HeartMate II pump

Product Development department Infection Mitigation: Designed a self-deploying tendril skin anchor to reduce trauma (thus infection) at the percutaneous cable exit site. Performed the component and system level V&V testing (protocol writing, execution, analysis and reports) for customized repair kit as part of a PMA submission.

Client: HSD Engineering, Oakland, CA – Contract Engineer/Designer **1995-2015**

Design and production drawings for vacuum furnaces and planetary drives.

Conversion of entire HSD drawing archive to more modern CAD system (2 year contract)

Client: Terumo Medical Corp, Fremont, CA – Senior Test Engineer/Designer **2002 - 2009**

Senior Hardware Engineer – Component and system testing for chairside blood processor working to FDA standards (7 year contract)

- Did individual component characterization and testing (pumps, valves, pressure sensors, filters, etc.)
- Did major subsystem testing (centrifuge drives, disposable process kits)
- Did full system testing (life testing, particulate contamination and microbial intrusion)
- Performed the full microbial challenge on the system (a 3-year effort that for the first time qualified a rotary seal as “functionally closed” for sterility)
- Worked on process kit package design and did Transportation tests
- Performed both gamma and ETO sterilization tests on the process kits
- Performed accelerated aging tests on the process kits
- Worked on the 510K submission
- Participated in hardware and software V&V
- Helped draw up the FMEA for clinical trials
- Wrote the clinical trial protocols and did the performance data analysis on the machine logs
- Worked directly under the FDA liaison for all protocols and test reports

Client: IntelliDx, Santa Clara, CA – Contract Engineer **2008**

Support test engineer for Optimus™ automated blood monitoring system. Developed the “Veinilator” simulator that mimics the pressure, flow and pulse of a human patient’s vein for use as a testing platform.

Client/Employer: Applied Materials, Santa Clara, CA – Contract Engineer/Designer **1994 - 2002**

2002 - Major drawing package update for "Odyssey" product acquired from Slumberger modifying from Slumberger and other sub-contractor formats to AMAT formats.

1999-2001 - Engineering support for development of HART (High Aspect Ratio Trench) product in both 200mm and 300mm versions. Primary responsibility was Cathode design. Secondary responsibilities included actively cooled magnets, chamber modifications, compiling master BOM for product release.

1997-98 - Engineering support for release of 300mm Poly system. Performed engineering review of entire chamber/DTCU.

1996 - Design of heavy lift maintenance fixtures for 200mm DPS Poly Etch system.

1994-95 - Senior Hardware Engineer responsible for design and upgrades of Poly Etch systems on Phase II and MxP chambers. Integration of CE Marking on the entire P5000 platform. Evaluation of robot vendors for CMP wafer cassette transports.projects

Client: Clorox Services Company, Pleasanton, CA – – Contract Engineer/Designer/Fabricator **2002**

Automated oxygen permeation test station for glad bag division

Client: Pacific Communication, Inc., Campbell, CA – Contract Engineer/Designer **2002**

Reverse Engineer custom computer chassis to accept ATX standard motherboards and I/O equipment.

Client: Sierra Technology Group, Livermore, CA – Contract Engineer/Designer **1999 - 2001**

Design and fabrication of 3-concentric axis drive system for dual-ion beam sputter system, modification of a commercial sputter-target fixture

Client: SysTech Systems, Livermore, CA – Contract Engineer/Designer **2000**

Design and fabrication of substrate tooling for planetary sputter system including ball-detent type quick release.

Client: Working Machines Corp, Berkeley, CA – – Contract Engineer/Designer/Fabricator **1998 - 1999**

Design of high pressure/high flow wash-down nozzle for meat packing plant

Client: Quester Technology, Fremont, CA – Contract Engineer/Designer **1997 - 1999**

Detail design of several generations of gas distribution head for Atmospheric Pressure CVD system.

Client: Northwest Mechanical Design, Alameda, CA – Contract Engineer/Designer **1995 - 1998**

Production drawing package for USVA prosthetic production program

Client: Scepter Scientific, Dublin, CA – Contract Engineer/Designer **1995 - 1998**

Spec-control package for anti-counterfeit sensors in money transport system

Fabrication package for “dual band” (visible and IR) optical system for F-18 fire control system

Client: Lam Research, Fremont, CA – Contract Researcher **1996 - 1997**

– Industry study for wafer handling robot for cluster tool

Client: TSC Corp., Livermore, CA – Contract Engineer/Designer **1995 - 1997**

Design of production tooling for target plates in multiple sputtering systems.

Design of substrate tooling including planetary fixtures

Client: Ion Systems, Berkeley, CA – Contract Engineer/Designer/Fabricator **1997**

Design and fabrication of high-speed, wide web static generating fixture for use in developing anti-static products.

Client: Equipe Technologies, Sunnyvale, CA – Contract Engineer/Designer **1997**

Multiple contracts integrating atmospheric and vacuum robots into equipment

Client: Advanced Cybernetics Group, Sunnyvale, CA – Contract Engineer/Designer/Fabricator **1996**

Design and fabrication of a surface-mapping end effector used with a crane robot to map the entire surface of any aircraft in the USAF inventory

Client: USVA, Center for Design Research, Palo Alto, CA – Contract Engineer/Designer **1994**

"Productionize" a quadriplegic rehabilitation system incorporating a voice-commanded industrial robot into an office environment.

Client: U.C. Berkeley, Berkeley, CA – Contract Researcher **1993**

Performed a study of automated tape/disk mass storage systems.

Contucted a seminar on robotics and automation for project researchers

Employer: Shrader Scientific, Hayward, CA - System Engineer/Designer **1991 - 1993**

Responsible for design of custom vacuum equipment used in manufacturing and aerospace testing including sputtering/coating systems, vacuum ovens, Thermal/Vacuum test systems and magnetic/vacuum annealing systems. Responsibilities ranged from entire systems to sub-component design.

Client: High Vacuum Apparatus, Hayward, CA – Contract Engineer/Designer **1989 - 1990**

Production drawing packages for a wide range of custom and production gate valves

Client: Bots, Inc., Mountain View, CA – Contract Engineer/Designer/Fabricator **1989 - 1990**

Design and construction of a family of "personality" robots for use in a pizza restaurant (this was a Nolan Bushnell company started as a follow-on to “Chuck-E-Cheese”). Some some were delivery bots, some were for entertainment-only.

Client: Martin Borenstein, AIA, Oakland, CA – Contract Engineer/Patent Specialist **1990**

"Productionize" design of a multi-function living chair. See “Patents”

Client: Document Imaging Storage Corporation, Santa Clara, CA – Contract Engineer/Designer **1990**

Production drawing package for disk transfer mechanism of a large optical disk jukebox.

Client: Motorola, Inc., Mountain View, CA – Contract Engineer/Fabricator/Integrator **1988 - 1989**

Produced Tabletop Factory training tool for Galvin Center Training facility in Schaumberg, IL. Contract included design, fabrication, documentation, installation at Galvin Center and training of the center's teaching staff.

Employer: Litton/Integrated Automation, Alameda, CA – Project Engineer **1987 - 1988**

Lead Engineer for robot based wafer ASRS for National Semiconductor.

Mechanical design and integration of portable, automatic rice inspection machine for Satake Engineering.

Design and development of precision camera mounts for Crane Paper mill.

Provided preliminary robot based designs for: Space Shuttle Solid Rocket Booster bore inspection tool (Morton-Thiokol), diffusion furnace loader (GaSonics), high speed ice cream bar dipper (Dove International), aircraft Master Plaster scribing system (MacDonnell Douglas)

Non-robotic designs for: automating acrylic fiber production (Monsanto), high speed candy bar aligner (M&M Mars), automated malt ball inspection/ sorting system (Leaf Candy/Whopper) and a similar system for radishes (Tem-Cole).

Client: Applied Robotics Technologies, Concord, CA – Contract Engineer/Designer **1986**

Development of robotic work cells for certification of hard disk media.

Client: Apple Computer, Inc., Fremont, CA – Contract Designer **1986**

Design and fabrication of minor production tooling for ORIGINAL Mac line in Fremont.

Employer: Zehntel Automation Systems, Walnut Creek, CA - Engineer-in-Charge, Robotics **1983 - 1985**

Integrated OEM purchased robots (Intelledex 605 and 705) as standard product to load and unload automated circuit board testers.

Developed customized test cells based on that product to suit individual customer's needs.

Supported field installations of the test cells.

Developed custom "end effectors" (robot tooling) to handle multiple and odd shaped circuit boards.

Supported trade shows in Chicago, Los Angeles San Mateo and Detroit.

Employer: Tracor Aerospace, San Ramon, CA –Automation/Ordinance/Test Engineer **1979 - 1983**

Principal Investigator for DOE/JPL automated solar panel assembly contract. Project used industrial robot to solder solar cells into strings of any length and configuration.

Awarded follow-on contract to build prototype, robot-based machines for solar panel lamination and edge sealing. Responsible for all scheduling, budgeting, report writing and presentation of technical papers at quarterly program meetings at JPL. Also responsible for supervision of designers, machine shop and electrical/mechanical technicians.

Test Engineer: Worked on several USAF passive counter measures (radar chaff, infrared flare) programs. Responsibilities included instrumentation of the test subject, high speed, multi-channel data recording and analysis on a desktop micro. High-speed photographic data were gathered with Redlake Hycams. Film analysis was done on a Vanguard Motion Analyzer.

Employer: Lockheed Missiles and Space Co., Sunnyvale, CA - Associate Engineer, Senior **1978 - 1979**

Responsible for coordinating subcontractor inputs into the Stockpile-to-Target Sequence for the Mk 500 re-entry body. This document describes all of the logistics and environments a re-entry body undergoes from the stockpile, through transport, loading, maintenance, launching, flight, and re-entry.

Employer: General Electric Co, Space Division, Sunnyvale, CA - Operations Analyst **1975 - 1978**

Systems Operations Analyst: Position duties included analysis, management and use of large software systems; on flight support of Air Force satellite as Command Generator which involved the real time generation of satellite command messages from Program Office inputs.

Senior Command Generator: Supervised four shift personnel (command generators) in the performance of above duties. Monitor vehicle station passes to give CG inputs in case of vehicle anomaly.

WRITING PORTFOLIO

Author: *Spaceship Handbook*, *The Saucer Fleet*

Editor/Publisher: *2010: A Modeler's Odyssey*, *Lost in Space Design: No Place to Hide*, *Jupiter 2 Technical Guide, N-1: A Reference Gude to the Soviet Superbooster, Dyna-Soar: It's Military History and a Legacy to the X-37B*

List of professional papers and magazine articles available on request.

AVOCATIONS

Model Rocketry (founder of largest rocket club in the country)

Photography

Automobiles and automobile history

American History