

Principle Materials and Process Engineer

High energy, hands on, results-oriented scientist/engineer capable in a wide range of technical processes.

- **Materials Scientist** responsible for processing metals, plastics, adhesives, chemicals, crystalline and amorphous materials.
- **Process Engineer** adept at chemical, laser, & mechanical processes development & evaluation using any lab equipment.
- **Statistical Analyst** competent at process optimization; highly accomplished in DOE, SPC, and Design For Six Sigma.
- **Documentation Specialist** proficient at rapidly producing test protocols, manufacturing processes, and work instructions.
- **Teacher and Trainer** skilled at communicating complex subject in easy-to-understand manner. Strong people skills.
- **Technical Innovator** with twelve patents (nine utility and three design). Extensive personal library of technical resources.

BS, Mechanical Engineering Technology, 1988 (magna cum laude) * Henry Cogswell College, Everett, WA
AS, Chemical Technology, 1986 (honors list) * Shoreline Community College, Seattle, WA

Licensed Professional Engineer, Washington State #34757 * Trained in Classical and Design for Six Sigma

Technical training courses include [Optical Light Microscopy](#), [Corrosion](#), [Particle Analysis](#), [Metallurgy](#), [Laser Processing of Materials](#), [Design of Experiments](#), [Statistical Process Control](#), [AutoCAD](#), [Pro-Engineer](#), [ANSYS](#), [Cosmos FEA](#), [SolidWorks](#), [Project Management](#), [First Aid](#), [Industrial Safety](#), [Hazardous Materials Handling](#), [Robust Design](#), [cGMP](#), [Mil-Stds](#), [ISO 9001](#)

Ultimate Survival Technologies, Monroe, WA – Military/Commercial Survival Equipment **3/07 to present**

- Designing military body armor, hand tools, decontamination stations, survival equipment. Numerous patents underway.
- Oversight for numerous ballistic tests per National Institute of Justice and Mil-Std-2105B. Developed light-weight armor systems.
- Designing composite seats to meet stringent international safety requirement; including carbon-fiber, Kevlar, and fiber reinforced polymers. Seat hardware includes specialty aluminum and titanium designs; fabrication, ornamental design post-processing.
- Oversight for crash seat testing per FiA (France) standard; developed lightweight FRP biax and woven roving layup.

HySecurity Gate, Inc., Kent, WA – Security Industry **3/05 to 2/07**

- Implemented thermal chamber testing of industrial gate operators, -40C to 120C.
- Introduced cyclic testing of gate operators, constructed hardware to allow life-testing of thousands of cycles to test hydraulic motors, bonded urethane wheel castings, and stress testing of FEA redesigned chassis.
- Established test methods for proprietary hydraulic oil; documented all technical reports per standardized format.
- Conducted rigorous failure analyses of printed wiring boards; instituted advanced in-house testing and repair facilities.

HydraMaster Corporation, Mukilteo, WA – Industrial Equipment **7/02 to 1/05**

- Wrote chemical protocols for wide variety of chemical products, including detergents, strippers, emulsifiers, deodorizers.
- Approved various chemical formulators and suppliers' quality systems, including laboratory and reported processes.
- Implemented HALT (highly accelerated life testing) Testing of new products. Eliminated catastrophic field failures.
- Upgraded welding shop HVAC to meet code, upgraded machine shop lighting (lumens/sq inch) to industrial standards.
- Co-founded and co-implemented Quality Management Systems. Vision for Malcolm Baldrige quality award.
- Managed numerous products to successful production release – expert at new product development process.
- Taught staff about robust designs and implemented robust analysis software – ensured that the new products would work nation wide in various humidity, temperature, altitude, end user variation environments. Systems are now SOP.

Honeywell International, Redmond, WA – Aerospace **1/78 to 7/96; 8/00 to 7/02**

- Used design of experiment techniques to optimize numerous accelerometer weldments for production and new product development. Hermetically welded aluminum alloys, copper, beryllium copper, stainless, Inconel, Monel, titanium.
- Considered expert at creating optimal laser processes for both Nd:YAG and CO₂ industrial laser welders and cutters.
- Pioneered the use of optical light microscopy for failure analysis; equipped and used complete particle analysis center.
- Instituted numerous corrosion control systems, including electroplating, chromate conversion coating, electropolishing.
- Capable in the use and safe handling of acids, bases, chlorinated solvents, fluorinated chemicals, surfactants, emulsifiers.
- Recommended various metal combinations to minimize weld stresses and minimize expansion stresses.
- Researched and brought into production two mobile laser cutting work stations to fit Lean Manufacturing goals.
- Developed and implemented novel photolithography/chemical process to successfully fabricate detailed, miniature fused silica components – project carried out in a clean room environment.
- Expert in the use chem lab equipment; vast experience in instrumental (AA, GC, TA, UV-Vis, IR) & wet chemical analyses.
- Capable in all areas of hybrid microcircuit manufacturing; including soldering, screen printing, die & wire bonding.
- Designed novel MEMS-Hybrid package that met thermal, cost, shock, hermeticity requirements – thousands produced.
- Developed an in-house gold reclaiming process saving the company thousands of dollars annually.
- Processed safely multiple hazardous chemicals, including sodium lump, mercury, cyanide, aqua regia, piranha etch.

MicroSurgical Technology, Redmond, WA – Medical Device

7/96 to 8/00

- Created, refined, implemented, and installed a remote, robust chemical deburring/polishing system. Documented process for vendor use. Thousands of precision medical instruments processed with no defects. Process in use to this day.
- Created precision laser welding process for surgical hand-held ophthalmic ultrasound instruments. Welds both cosmetic and functional (water-tight). Process developed at supplier, including tooling and methodology. Hundreds manufactured.
- Developed numerous titanium electro-coloring processes for lightweight medical irrigation/aspiration instruments.
- Instituted economical micro hardness testing processes for QC of components. Specified hardness process & requirements.
- Designed and implemented quality control system electro-mechanical evaluation of piezoelectric medical instruments – acceptance level on first-time assemblies went from 40% to over 98%. Implemented life testing of autoclaved instruments.

Henry Cogswell College, Everett, WA - Academia

1/91 to 3/05

Proven ability to clearly communicate technical subjects; wrote and taught EIT/FE, PE, and design courses. Subjects include: Materials Science; Fluid Mechanics; Thermodynamics and Heat Transfer; Engineering Economics; Chemistry; Mechanics of Materials; Electric Circuits; Statics; Computers; Ethics; Mathematics; Dynamics; Vibrations; Machine Design; Power and Refrigeration Cycles; Hydraulic Machines; Fuels and Combustion; HVAC; Project Engineering, New Product Introduction.