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Objective

To continue my career as a consultant/contract Analog, Digital and Firmware design engineer.

Professional Summary

Over 30 years experience in Analog and Digital hardware design plus high speed RF and Optical Fiber Interface design within the Telecom industry. Led projects from inception to production performing all design tasks including Firmware, Hardware and Printed Circuit Board development. Holder of 3 patents.

Professional Experience

2003-Present

Independent Contractor (Circuit-Designer.com)

- Custom circuit design from conception to finished product for small companies not requiring full time engineers. Work includes schematic design, PCB layout and firmware. My most recent contract customers include, [Cerwin Tool](#) , [Touch Sensor Corp.](#) , [Intraaction Corp.](#) , [WI-Tronix LLC](#). Most recent project involves custom switching power supply designs for industrial use. Solar and Wind power electronics. Locomotive data gathering systems. Portable Lithium Ion charger/power systems.

2002-2003

Material Sciences Corporation (MSC) Manufacture of Touch sensor controls through materials. Hardware/Software Design Engineer reporting to General Manager

- Define Touch Sensor and Fluid Sensor circuits for Consumer, Marine and Automotive applications.
- Perform all design prototype processes on each project including Schematic, Bill of Materials, Surface Mount PCB layout, PCB Etching and placement of components and, if applicable, Microcontroller Code.
- Design of Sensa-Tank fluid measuring system from conception to production within a three week time frame. This device was mentioned in the MSC quarterly report as a major company accomplishment.

1992-2001

Westell Inc. Telecommunication Equipment Manufacture.

Direct report to Engineering Managers

Advancement: Began as Design Engineer (Hardware & Software)

1992-1996

Promoted to Senior Design Engineer

1996

- Defined and designed Quad Optical Fiber Mux using FPGA (Field Programmable Gate Array) and 8051 Micocontroller knowledge. Product became profitable rendering an improved cost reduced design. Product still in production under the name "Quadjack"
- Developed Optical Laser driver circuits for a WDM version of the Optical Fiber Mux system. Plus experience in Optical Switching techniques, and SONET M13 Mux systems.
- Module level design of switch mode power supply's.
- Served on committee to develop techniques for high frequency design of Printed Circuit Boards.
- Created entire system for Optical Fiber Mux including enclosures, backplane PCB layout and Alarm modules.
- Assisted product management during field trials of the Optical Mux system.
- Conducted relations with customers IE, Bell South, SPC, Timewarner, to reinforce customer relations and support product.

1977-1992

Rockwell International (Wescom Div.) Telecommunication Equipment Manufacture.

Direct report to Engineering Group Leaders

Advancement: Began as Engineering Technician Level 3

1977-1979

Promoted to Engineering Technician Level 4

1979-1982

Promoted to Engineering Technician Level 5

1982-1991

Promoted to Design Engineer Level 1

1991

- Designed digital and T1 regenerator sections for Office Repeaters. Created backplane PCB for original 3192 mechanics which later became an industry standard.
- Consultant to Motorola for development of a low power Operational Amplifier (MC33178/179) for use throughout the telecom and low power audio industry. This amplifier is still in use today.
- Created several designs of T1 NIU's (Network Interface Units)
- Received 3 Patents , a Passive NIU Signal Grabber which extracted a T1 signal from a passive signal during open or shorted conditions allowing performance monitoring of the circuit. Also Patents for a T1 DSX equalizer circuit and for a low cost Sealing Current device which reduced costs by 80% over the previous circuit.

1973-1977

Shape Magnetronics Manufacture of Power Supply's and Transformers.

Direct Report to Company President.

**Advancement: Began as Engineering Prototype Tester
Promoted to Engineering Technician Level 1
Promoted to Engineering Designer**

**1973-1974
1975-1976
1977**

- Setup test circuitry for evaluation of new Transformer and Power Supply designs up to 50 kilowatts of power.
- Learned Power Transformer design with help from company President.
- Studied and implemented solid state power supply design.
- Designed DC to AC inverter which allowed me my first Patent

Personal R & D

Presently developing power control circuitry for automated Solar and Wind Turbine charging system for home power generation including load prioritizer and solid state switching circuits. Furthered education of switching power supply theory during summer of 2003 and have recently Completed a variety of switching power supply designs from 10 to 400 watt.

Training & Certificates

FPGA (Field Programmable Gate Array) design
Altium, Orcad ,Pcad and Viewlogic CAD systems
Spice analysis (Electronics Workbench, Rockwell/Berkley)
Switching Power Supply Theory
Surface Mount PCB design for high speed and RF applications
Fiber Optic design theory
8051 Microcontroller assembly code
RF design theory, RF links, Tranceivers
Power transformer design theory
General Class Broadcast License, General Class Amateur Radio Licensed
Audio/Video Studio design
Adobe Premere Video Editing system
Dreamweaver Web Designware
Lithium Ion Power Supply and Charger Theory
2 Years Electronic design College of Dupage, Glen Ellyn, Il 1972-1974
2 Years Media Production College of Dupage, Glen Ellyn, Il 1972-1974
BA SIU Media Production 1974-1975