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Objective: To excel in the areas of product design and development of electronics for consumer and industrial sectors, including microcontrollers, microprocessors, DSP, wired and wireless modems/chipsets, FPGA/PLD, imaging (CCD and CMOS/APS). I also specialize in the design of precision analog circuitry including instrumentation/control, RF integration, and telecommunication solutions. All phases of 3D/solid/surface modeling for use in mechanical and architectural disciplines.

Skills and Abilities: OVER 22 years of experience. *Fast learner especially in the areas of mechanical and electrical engineering software. Autodidactic and resourceful, self-starter but also a team player. Advanced troubleshooting skills. Mechanically inclined which allows me to also build the products and execute ECO's. Advanced understanding of manufacturing and production.*

Experienced with: Electrical design - *Analog and digital circuit design and simulation using schematic capture and HDL's, RF and wireless product integration, Manufacturing and DFM procedures for production and assembly, Rapid prototyping of PCB's including SMT and logic devices including FPGA/PLD development, Agency approvals (UL, CS, FCC)*

Mechanical design - *Solidworks and AutoCAD/Mechanical Desktop, SLA and FDM creation for prototype fabrication for proof-of-concept and advanced marketing, IGES/ACIS/STL conversions to G-Code using Visual Mill, Metacut. Operation of multi-axis CNC machines using MACH 3.*

Feel free to ask for references... if not mentioned, all work included interfacing with manufacturing and fabricators of various disciplines. I can also provide many references to various CM's, fabricators, and PCB houses. The one remark I get most is it's done right the first time...

I personally own legal licenses over 30 various CAD and EDA software suites. Have over 18 years of experience with Altium Designer, over 16 years of experience with Solidworks (one of their first customers). I own a full lab and small machine shop with CNC (4 axis). Feel free to visit my web pages at:

<http://home.comcast.net/~ajawamnet/wc/wamcover.htm>
<http://home.comcast.net/~ajawam3/swarf/swarf.htm>

I typically turn designs in weeks. I average around 100 designs a year out of my basement lab/shop, have done so for the last 12 years here in the Washington, D.C. area. I'm typically called upon for projects with medium to high complexity, short turn times, and are already behind schedule.

A recently published article in a PCB trade publication:
<http://pcdandf.com/cms/marketnews/9499-voice-of-the-designer>



Website Address: <http://home.comcast.net/~ajawamnet>

Work History – Full Time Positions

Hart Technologies, Manassas, VA 2009 - PRESENT

Lead hardware designer for all hardware that was developed at Hart in support of the Seaport DoD contract for NAVSEA.

All mixed mode designs with high level of complexity utilizing various microcontrollers and I/O.

In addition I was the sole hardware designer on various projects, including the development of a system that emulates over 900 signals based on UDP streams.

Verizon Business (formerly MCI/Netsec), Herndon VA 1999-2007

Network Security Engineer/Senior Hardware Engineer

Responsibilities include network hardware development for use in security services. Developed and designed specialized embedded hardware for high speed networks including ATM/Sonet and ADSL devices for VPN, firewalls, network intrusion detection and network management. Designs include high-speed communication processors, DSP and network interface for UTP and fiber. Lead designer for various products including wireless intrusion systems, border devices, supervisory computer security products. Provided full manufacturing documents as well as interface with software developers.

Developed all hardware (sole developer) for both patents obtained by VB/NETSEC:

USPAT 8,250,235 <http://ajawam3.home.comcast.net/pat8250235.pdf>

USPAT 7,778,606 <http://ajawam3.home.comcast.net/pat7778606.pdf>

The latter was featured in GCN - http://ajawam3.home.comcast.net/http_www.gcn.com_22_30_news_23850-1.pdf

Amnet Data Communications, Inc / ST Corp Hopkinton, Massachusetts 1994-2000

Co-Founder & Senior Engineer

Chief responsibilities are product conceptualization and development, design and layout of product electronics and mechanical packaging for production of hardware used in ITSP (Internet Telemetry Service Provider) systems and networks, FPGA and microcontroller hardware design and layout, design of imaging devices including CCD and CMOS/APS sensors. Designed and integrated wired and wireless/RF hardware for use in TCP/IP and network architectures.

Inventor, USPAT 6,208,266 for Remote data acquisition and processing system:

<http://ajawam3.home.comcast.net/pat6208266.pdf>

Stern Enterprises Pittsburgh, Pennsylvania 1991-1996

Engineering Contractor

Design and layout of microcontroller-based control systems for use in large HVAC/boiler systems. Design and fabrication of fire alarm control system interface to automatic door release systems to comply with local and state fire codes. Also generated retail planning, LOD and site drawings for many different retail and commercial accounts.

Work History – Independent Contract Positions

Please note this is a partial history... I've done so much work in the last 10 years that I can't remember some of them – some as far as Asia... and all of my clients realize that my full time job takes precedent. Still, I continue to get (more like demanded) work from many D.C.-area clients.

Labrador Technologies, Manassas, Va 2012 - PRESENT

Design of PCB's for use in high power LED operations. Designs include LED drive circuitry, for various components from manufacturers such Nichia, Luxeon, CREE, etc. I have a full library of thermal modeled land patterns modeled using FEM based modeling, tested and verified in real world conditions with in-house FLIR imaging as well as independent testing labs such as ELABs here in Virginia.

Applied Technovations, North Potomac, MD 2007- PRESENT

So many PCB and product designs I can't even put a number on it. Multilayer mixed mode to various u Controller based designs – hand built all proto's before production runs commenced. Also a lot of solid modeling for one off's as well as injection molded assemblies. Most designs turned in hours...

A recent product I did for a Welch - Allyn supplier - now on Nextag:

<http://www.nextag.com/Health-O-Meter-C-602593547/prices-html>

Here's some links to photos of the prototype:

<http://home.comcast.net/~ajawam/DSCN1892.JPG>

- you can see the 8mm patient barrier knocked out on all copper layers as per IEC 60601 ...

<http://home.comcast.net/~ajawam/DSCN1894.JPG>

Did the initial proto in a few weeks. Stock enclosure modified in Solidworks for custom front panels.

Here's a vid of my CNC cutting the prototype front plates:

<http://home.comcast.net/%7Eajawam1/DSCN1990.wmv>

Was able to pass very stringent EMI testing at Welch Allyn's lab in NY in accordance with W/A medical device requirements.

WAI and Associates, Crystal River, FL 2006 - PRESENT

Designed everything from hand held crypto devices to TEN's units the size of a guitar pick. WAI is a certified ATMEL developer.

Communication-Applied Technologies, Reston, VA 2000 - PRESENT

Contract design of PCB's for various communication systems for ICRI and hazardous environments. Designs included uC, uP, mixed analog and digital as well as a fair amount of RF layouts. Have completed well over 300 design spins of various subsystems, providing full electronic manufacturing/fabrication packages as well as a few hand-builds. Also assist in the design of mechanical enclosures.

Global Technologies Group Inc., Alexandria, VA 2000 - PRESENT

Design of the Powercrypt line of crypto accelerators in both PCI and PMC formats. Total design and layout of system as well as providing full electronic manufacturing packages used by various CM's in the DC area. Also performed handbuilds of the first of each design.

CADRE Engineering Herndon VA (now Total Embedded, Sterling, VA) 2000 - PRESENT

Various projects including embedded PICMG backplanes, StrongARM based design for handheld, wireless inventory control system (designed PCB's for both endpoints). Provided full manufacturing packages as well as interfacing and providing industrial designers the necessary models for use in concurrent enclosure design

Frederick Engineering, Columbia, MD 2000 - 2009

Design of PCB's for use in telecomm testing equipment. Provided full e-doc for manufacturing and fabrication, including redesigns of existing products.

Fulcrum Technologies, Reston, VA 2004-2005

Design of power supply and enclosure for agile PLL system. Provided full design services as well as electronic documentation for fabrication and manufacturing. Performed prototype enclosure design and fabrication.

SuperTek, Inc., Fairfax, VA 2003-2004

Total design of hardened wireless system for use in first responder and military applications; design included power supply with auto selection of shore or 12/24VDC as well as lead acid back-up; designed lead acid charger, full turnkey solution including enclosure design in less than 3 weeks. Provided mfg. files for both fabrication of multiple PCB's and enclosure. Provided 4 handbuilds that performed to spec on first turn of system.

YDI incorporated, Merrifield, VA 2002-2004

Assisted in the design of various systems used for 802.x wireless products including system used in NYC to convert phonebooths to access points – did that in less than 1 week. Provided a plethora of manufacturing files to so many various vendors that I can't recall the total number of different formats I had to generate.

Lane Poor Music Co., Fall Rivers, MA 1998-2001

Consultant – Embedded Electronics Development

Developed and designed various analog and digital devices for sale in the professional audio marketplace. Designed and prototyped a line of very low powered pre-amps, equalizers, and other circuitry for use with magnetic pickups in on-board instrument applications to compliment the existing LPMC product line.

Elliott Turbo Machinery, Inc. Jeannette, PA 1998-1999

Cad System Administration Support

Responsibilities included support of Anvil 1000/5000, AutoCAD (R14) and Pro E workstations on various platforms including Windows (NT/95/3.11) and Unix. Assisted in the development of various databases for use in CAD management of over 300 users. Developed in-house methods for manuals and interface to MRP/BOM systems consistent with in-house Lotus Notes server database. Troubleshoot and rectify network/hardware anomalies and user training. Developed various Access and ODBC-compliant databases.

The Birmingham Group Pittsburgh, Pennsylvania 1994-1996

CAD Contractor

3D CAD designs for use by Heinz, GE, Weight-Watchers, and others during large-scale stockholder conventions, conferences and special events, 3D visualizations for use in planning such events and generated working 2D drawings for use by the SE teams.

Mulberry Street Recorders 1997:

Contract Engineering

Redesign and layout of large audio production facility. Produced 3D models and renderings for room design acoustical analysis and equipment installation/wiring, generated working drawings for use by contractors.

QSC, Inc. Pittsburgh, Pennsylvania 1989-1996

Consultant/Contract Engineering

Design and layout telecommunication systems for use in the US and Saudi Arabia; remote alarm and telecommunication system design; designed custom computer systems and hardware for use in bid specification of large utility contracts.

WYEP-FM, Pittsburgh, Pennsylvania 1987-1993:

Consulting Engineer

System design, troubleshooting and service of all phases of broadcast technical requirements including operator training on new systems; physical plant layout and documentation. Design of site survey for legal proceedings concerning proposed new transmitter facility using 3D modeling.

OPUS ONE, Inc. Pittsburgh, Pennsylvania 1982-1988*Engineering/NSM*

Design and engineering of custom conference room and educational A/V electronics, developed products for the emerging teleconference and data presentations market including PC interfaces which generated \$1.2M in sales during an 11 month span of time. This included supervision of all phases of design, installation and debugging of various types of telecommunication equipment including uplink and downlink satellite systems servicing clients such as Mellon Bank, Westinghouse, Mobay Chemical, Dow Corning. Developed analog circuitry and filters for use in non-destructive (ultrasonic) testing.

Other clients in the broadcast/production industry:

WMYG-FM (WRRK-FM) 1987-1988: Design and installation of new 35 kW transmitter plant, operator training and education, rectify all interference complaints with a 100% success rate. all phases of technical operations of studios, STL, and transmitter sites; **WYDD-FM 1987:** assisted Comsult Inc. in the design and installation of new transmission equipment after fire swept through the previous plant, assisted with the troubleshooting and repair of transit damaged equipment; **WJLY-AM 1987-1988:** represented Comsult engineering in all emergency and many non-emergency repairs, operator training on all studio, production, and transmitter equipment; **WDUQ-FM 1987:** repair and troubleshooting of automated tape reproduction equipment, repair to production studio tape machines and audio gear.

ALPHASTAR RECORDING STUDIOS 1987-1988: supervised the construction and installation of the twenty-four track automated studio, debugging of vendor and manufacturer errors in said system; redesign of audio equipment wiring and room using CAD and manual drafting techniques; design, installation and debugging of new A/B roll video editing system (including 3D computer graphics); operator training and education, setup logging systems and other non-technical related matters; repairs of all equipment various non-A/V related technical work in facilities.

BLUE DIAMOND STUDIOS 1987-1988: warranty and non-warranty repairs to existing systems, design and implementation of various processing gear, operation of studios and operator training, technical consultant.

CZ SOUND 1987-1988: engineering services, technical bench work on the development, design and repair of sophisticated audio systems, assisted in the design of systems for the Three Rivers Regatta and the Pittsburgh Symphony at the Point, stage management and live production of various national and local musical acts including Maureen McGovern, Grover Washington Jr, Ramsey Lewis, Wynton Marsalis, Arlo Guthrie.

EVERGREEN RECORDING STUDIOS 1987-1988: troubleshooting and repair of all equipment, rewired entire facility after equipment was hacked apart with saws during a foiled burglary attempt.

AUDIOEXCHANGE STUDIOS 1987-1988: repair massive system flaws and failures due to poor equipment design and construction; operations and operator training.

THE AVR_x SYSTEM FOR CONSUMER SERVICE 1987: designed and marketed system for the repair of consumer appliances and electronic products, designed system hardware and software for diagnostics.

THE PITTSBURGH COTTON CLUB/ILLUSIONS NITECLUB/HEAVEN 1990-1996: Consultant three different times in the design and installation of sound and lighting systems, Consultant in the design and installation of specialized equipment for use in three-phase control of a 24,000 watt sound and +300,000 watt lighting system. Redesigned and re-engineered system after original vendor was fired from job; redesigned and rewired entire installation and secured registered engineers for structure. Redesign of system for use for live broadcasts of national acts

db MAGAZINE 1987: published various technical subjects concerning audio production and techniques