

Alex Stuhl

Dallas, TX

-Email me on Indeed: <http://www.indeed.com/r/Alex-Stuhl/e0e7950906fd0639>

Motivated to develop new technology and transform ideas into successful products. Experience leading multi-functional teams. Experience in a technical leadership role, including requirements analysis, feasibility studies, effort estimation and project dependency planning. Strong experience in measuring fields including Radio Frequency (RF), antenna, and Software-Defined Radio (SDR), analog circuits, AD-DA conversions, COTS, diagnostics, Direct Digital Synthesizer (DDS), EMI/EMC, ESD, MEMS, microprocessors, optical, precision low-level signal acquisition, power supplies, real-time system (C, Python), signal integrity, simulation, systems

Authorized to work in the US for any employer

Work Experience

Consultant-owner

Clide - Dallas, TX

August 2019 to Present

Manage/design information processing equipment to operate in a harsh (ARM Cortex M4 @210oC, radiation-hardened >300 Rads) environment: systems, components, circuitry, verification, including board bring up, and new processes. Development of concepts of operations

Design Plex Biomedical, LLP, Consultant, Fort Worth, TX Sep 2018-July 2019

Design portable medical electromechanical device class 1 antenna, processor Blue Tooth BLE5 STM32WB55 include RTC, digital scale amp

NAU7802, accelerometer LI S2DE12, proximity detector MTCH112, temperature sensor MCP9808. The system include a cellphone and cloud

Architect/Design Electrical Systems Hardware for cardiac assistance for new medical equipment. ISO13485 class 3, IEC 60601-2 patient safety

GE Aviation, Consultant, Dayton, OH Jan-Sep 2018

Design work on new power extraction, generation, distribution, and conversion systems for the Next Generation (MUSTANG) program FAA-GE

Aviation: exciter, power circuits 700V, ESD protection, 3 phase, transformer, isolated topology, PFC, AC-DC, DC-DC converters, PCB 2.5KW

Design hardware to meet rigorous military requirements for platform, environment, functionality, cost, and Size, Weight, and Power (Swap)

Utilizing Altium designing various types of PCB's for analog, digital, power, RF and interconnect/flex applications. IPC-2221b, 2222,2223

Consultant

Goodrich Corp - Vergennes, VT

December 2010 to June 2021

Designed industrial/aircraft applications wireless sensor units network of 900MHz, 2.4GHz ISM bands 802.11, 802.15.4 including enhanced data rates to 2-11-150Mbps. GP/ Patch antennas. Antenna Testing using anechoic chamber near field/far field measurements Processors Soc, MPS430 (TI) / PowerPC (Freescale); memories DDR2 SDRAM, Flash; USB OTG, CAN, RS232, RS485, I2C, PCIE-1553, Ethernet interfaces. AQEC parts selection. Exchange battery monthly-yearly option. Lithium base rechargeable battery option. ESD issue

Consultant

GAD Light - La Jolla, CA
December 2012 to May 2021

Developed medical portable devices (diabetes management system) base of ARM Cortex M3, M4; wireless communication 3G, Bluetooth 4BLE, GPS. Power circuits (batteries, chargers, wireless charging, LDOs), audio-amplifiers, CODEC, displays, MEMS motion devices. Memories, UART-SPI-I2C devices. Systems stretch prototypes. Guidances for PCB Layout Designers. Flex circuits. EN60601

Consultant

Oliden Technology LLC - Sugar Land, TX
July 2013 to January 2021

Designed Downhole Azimuth Resistivity Tool (DART) for MWD application use three frequency bands 2MHz, 400/100KHz investigation. Transmitters use Enhancement GaN transistors D-class; receivers base of ultra-low noise LNA architecture. Phase-Amplitude used oversampling technique. System architecture, synchronization, Direct Digital Synthesizers (DDS), PWM, Navigation system, SMPS

Hardware Engineer

Mercury Data Systems - Lexington, KY
January 2015 to November 2017

Created proposals and specs for Inertial Measurements Units IMU include GNSS receiver. Design IMU base of custom spec including processor ARM Cortex M7, high precision MEMS triple gyroscopes, 3-axis accelerometer, 2-axis inclinometer, temperature sensor, barometer, geomagnetic sensor 3-axis, GNSS L1 band receiver module with embedded active antenna, GSM bands module with embedded active antenna, BLE 4.2 module with internal patch antenna. Design test fixtures Linear or Switch mode power supplies (SMPS). Lithium-ion/polymer battery and charger/cordless charging. Communication are USB/RS-422 or wireless. Experience use Arduino/ Raspberry Pi for prototyping

Supervise external mechanical engineer and external PCB layout designers (Altium, PADS). Simulate signal integrity LT Spice and TINA tools. Calculated PCB stack-up and impedance control traces. Antenna simulation. Test plan, and verification assemblies. Design custom test fixtures

Performance of assigned project tasks (including technical, schedule, product integrity and manufacturability)

Architecture and design PCB RF layout for embedded SoC platform of portable Bluetooth LE motion sensors (MEMS 9 axis: accelerometer, gyroscope, digital compass, barometer) for variable applications. Systems stretch prototypes, platforms, wearable devices, boards bring-up

Consultant

Baker Hughes Inc. - Houston, TX
October 2013 to November 2014

Architected and designed RF section downhole Multi Frequency Dielectric Resistivity (MFDR) Tool for LWD application use five carrier frequencies in sequence from 30MHz to 1GHz with cancel-out error compensation technique. Create adaptive algorithm measurement final parameters dielectric constant base of the formation conditions. RF section include frequency synthesizer, switchable gain LNAs, direct quadrature zero-IF conversion 4 receivers-6 transmitters, selectable low pass filter for each carrier frequency, 6 wideband PA GaN 40dBm CW.

Switch mode power supplies (SMPS). Kick-Off. Jigs/fixtures/platforms/ mock ups. System test. Qualify parts 185oC. Hybrid module study

Designed downhole ultrasonic imager focus on front-end and back-end circuits matrix 192 transducers for 6 dynamic beams. High voltage issue

Consultant

General Dynamics SATCOM - Dallas, TX
May 2011 to January 2012

Created proposals, specs, test plans for RF portions (L, S, C and X bands) and optic links SATCOM GOES-R station

Senior Technical Adviser-Electronics

Halliburton Energy Services, Inc - Houston, TX
June 2007 to May 2010

Led the RF Group. LWD. Performed systems architecture down to the component level, generated specs and consideration documents.

Executed robust image rejection architecture trade studies and HW/SW partitioning. Preparation and presentation of engineering concepts and data. Calculated RF link budget. SWR calculation in real time. Working temperature up to 180oC. Taconic teflon PCB. EMI-EMC issue. Design for manufacturability (DFM). Reliability testing HALT; MTBF calculations. Guidances for PCB Layout Designers.

Architecture and design of High Frequency Dielectric Tool (HFDT) equipment RF section includes five waveguide transducers, synthesizer

1GHz (National Semi), IQ modulator (transmitters Analog Device) and direct conversion IQ demodulators (receivers Analog Device), switchable low noise amplifiers chain up to 30-63dB (NEC, Avago), LDMOS RF power amplifiers up to 33dBm (Freescale), TX directional couplers 20dB

(Anaren), RF detectors (Analog Devices), RF pre scalars 2-8-8 (Peregrine Semi), RF digital step attenuators 5bit (Peregrine Semi).

Microcontroller circuit Microchip, DAC-ADC (Analog Device) 14bit 25Msps for each channel. Low noise DC-DC converters. Adaptive algorithm for measurement. Full DSP control (BlackFin, Analog Device), oversampling baseband. Compensation technique. Full diagnose equipment.

Designed not-standard equipment for debugging and manufacturing a test RF section by Kelly board XEM3010 and LabView option.

Created a database for optical sensor parts working temperature 180oC: test procedures and evaluation-test PCBs.

Created a database for parts working temperature 225oC: test procedures and evaluation-test PCBs.

Principal Project Engineer

Continental Electronics Corp - Dallas, TX
April 2006 to May 2007

As Project Lead, performed systems architect down to the component level, generated specs and consideration documents. Execute architecture trade studies and HW/SW partitioning. Signal integrity. Supervised mechanical and PCB layout. ESD-EMI-EMC issue. DO-160, DO-254.

Designed RF Engine PCI card for high definition radio broadcast equipment on iBiquity platform TI DSP 320C6415T. Designed target board: high speed 16b ADC-DAC LVDS buses control by Kelly board XEM3010

Designed RF CW transmitters (include power supply) 1 and 2 Megawatts for Brookhaven National laboratory/US Department of Energy

Designed low noise digital control power supplies for broadcasting transmitters 1-60KW: Modular, Power Factor Correction (PFC), full bridge converter-synchronous rectifier (phase shift ZVT converter) TI DSP TMS320F2801. Efficiency 95-96%. High voltage issue. EMI/EMC issue

Designed eval power amplifier use pair LDMOS 1KW for modular broadcasting transmitters 1-20KW include digital pre-distortion DSP portion

Staff Project Engineer

ENSCO, Inc - Melbourne, FL

March 2005 to April 2006

Ran a multi-functional team. Performed robust systems architecture down to the component level, generated specs. Maintained the project's proposal, forecasting, staffing, budget, schedule, integration, and test plan. Executed architecture trade studies and HW/SW partitioning.

Championed cost reduction. Supervised embedded, optical, analog ASIC, mechanical and PCB/flex layout. Led electronics lab. Metrology and

Engineering Change System ECO to design for manufacturability (DFM) strategy. DO-160,-254. Prepared documentation for FCC/UL agencies.

Designed equipment to measurement thickness of oil on coating substance. Wavelength domain reflectometry, infrared and visible arrays/sensors, low-level signal acquisition 16b base of TI microcontroller MSP430F4270 as frontend and PC/DSP algorithms as backend.

Designed multi wavelengths VCSEL lasers - GaSb-InAs PIN photo-detectors research system to the characterization of surfaces 400-2300nm wavelength (using ZEMAX tool)

Consultant-owner

Clide Remote - Dallas, TX

October 2001 to March 2005

Generated projects quotes, budget, schedule, and test plan. Directed proposal development activities for each project, including a request for proposal review and analysis, bid determination, technical writing and editing, review of technical and business proposals. Performed systems architect down to the component level, generate specs. Made preparation and presentation of engineering concepts and data for internal design reviews and customers. Involve to FCC Part 15, and UL/CE approvals. Wrote VHDL and C codes. Signal integrity analyzes: PSpice/ Hyperlynx/

ModelSim/ MultiSim simulation. EMI-EMC issue. Guidances for PCB Layout Designers. Hands-on.

Designed equipment 300-2400MHz bands ISM, Bluetooth, Zigbee, RFID applications. Slot, patch antennas. Testing using anechoic chamber.

Designed GSM disposable 2 bands handset (Qualcomm chipsets) and car charger for China market.

Designed digital control power supplies up to 1KW different configurations. Battery chargers Li-Ion/ NiMH.

Designed voltage control negative resistance oscillator VCO 14-17GHz band, SSB phase noise -160dBc/Hz @10kHz. Output level is +5dBm.

Designed RFID tag TX 0dBm for US/Japanese markets 303.875 and 433.92MHz bands. Present function, motion detecting and infrared (IrDA) sensors; micro controllers Microchip PIC12508 or TI MSP430F1101; bi-polar transistor colpitt SAW generator or RF transmitter MAX1472; F and patch PCB antenna; up to four years battery life.

A proposal on develop for an energy-efficient house including a grid, sun/PV, wind/turbine, running water/turbine, and a backup battery up to

10KWH. High effective power AC/DC-DC/AC converters up to 200-500KW.

Participated in a tender for invasive cardiology equipment: low-level signal acquisition 16-256 expanded matrix channels amplifier, 20-24 bit sigma-delta ADC, FPGA as FIR/IIR filters, Monte Carlo method spread.

Designed hardware and firmware (Microchip controller PIC16C874) for C-17 aircraft maintenance trainer device of traffic alert/collision system

Designed RF generators and channelizers for CATV 7-806 MHz Emergency Alert System: audio-video circuits, oscillators, PLL, AGCs, attenuators, power combiners, prescalers, VCOs, mixers, upconverters - down converters, and monolithic amplifiers. Microchip controller PIC16C62A. Calculated passive filters.

Senior Digital Design Engineer

Navini Networks, Inc - Plano, TX

September 2000 to September 2001

Involved in the design of WCDMA Base Station 802.16 with redundancy. Generated board's specifications. Guidances for PCB Layout

Designers. Performed signal integrity analyses. Made PSpice simulation. Generated C/VHDL code. EMI/EMC/ESD issues.

Designed RF and digital backplane passive boards of BTS. Implemented Motorola GPS 1.5GHz modules to BTS. JTAG debug interface a chain. Designed test fixtures. Designed BTS Wire harness. Press-fit connectors.

Designed Heat Management Controller (HMC) boards with redundancy to maintain temperature inside of BTS zero to 70oC with outdoor temperature minus 40 to 85oC. Provided hot swap shot-down signal to digital and RF boards, power distributions heaters and fans: Philips microprocessor x51 OTP P87LPC762 and LPC767, temperature sensor DS1775 (I2C bus), two two-way opto-isolator channels for I2C, high current drivers BUK215.

Senior Consultant

Fujitsu Network Communications, Inc, Transmission Development Division - Richardson, TX

November 1999 to August 2000

Designed Fast Ethernet and Gigabit (fiber SONET OC-12) ATM/POS transport unit (main board: C-5 networks processor, two Fujitsu ASICs, two PHY 4x100 Base-T, transceiver SERDES VSC7123, two Micron memories SDRAM TC59S6432, MoSys pipelined-burst-SRAM

MC805256K36 (9Mbit 256Kx36, 200MHz speed grade), IDT recovery circuits-PLLs clocks 100 and 150MHz 74FCT388915, LVDS drivers and sub-board (Motorola PowerPC MPC8260, Tundra PCI bridge CA91L8260, four Micron SDRAM MT48LC8M16, boot flash 28F160S3, clocks 50 and 66MHz, CPLD XC95144, JTAG chain, In-Circuit Emulator (ICE), hot-swap controller and start-up sequences, hard/soft-ware trade off.

Compact PCI connection. Guidances for PCB Layout Designers.

UTOPIA L3 test boards for verification Fast Ethernet and Gigabit Ethernet units. Debug (fast down load) board: Ethernet 10/100 LX T971 chip,

RS-232 driver, ATMEL 89C2051 microcontroller OTP. Passive crossover and junction (bridge) boards. Loop-back board FPGA Virtex XCV200-6 with UTOPIA L3 protocol: transmit and receive clocks speed 100MHz. Wrote C, VHDL codes. Involved FCC and UL/CE approvals.

Senior Hardware Design Engineer

NEC America, Inc, Wireless Engineering Division - Irving, TX

January 1997 to October 1999

Developed target boards CDMA handset Cellular (IS-95A/B) and PCS (J-STD-008) standards: Qualcomm CDMA: MSM (Mobile Station

Modems), PMIC (Power Management), Xilinx FPGA Spartan serial, Flash-SRAM-Stacked MCP (Multi Chip Package) memories,

RealTimeClock (RTC), display, DSP, codec, audio circuit, high efficiency low noise power supplies. EMI/EMC/ESD issues.

Designed platform board for the ASIC development of CDMA phones: ARM7T processor 25 MHz, two Xilinx FPGA 4085, high speed SRAM

(4Mx32, 8ns), Flash (2Mx16, 70ns), DSP processors (TI 80MHz and NEC 66MHz), JTAG-Xchecker, Ethernet-USB-IrDA-UART-RS-232 interfaces, RTC, codec, audio, power supplies. Guidances for PCB Layout Designers.

Designed accessories for NEC PY handset project included proposed product specifications: a Cigarette Lighter Adapter (CLA) and travel and top chargers for Li-Ion and NiMH/NiCd batteries. FCC, UL liaison agencies.

Design Engineer

Bird Electronic Corporation - Cleveland, OH

August 1993 to November 1996

Designed linear, nonlinear analog and digital circuits for handheld RF power meters: square, average, square-root, peak-detector for precision low level signal acquisition and conditioning, low noise amplifiers (LNA).

Calculated and designed passive filters, such as Butterworth, Chebyshev, Elliptic function to 2.4 GHz.

Senior Scientist /Team Leader

Scientific-Research Institute of Digital Systems (Southern Ural State University) - Chelyabinsk, Russia

January 1985 to December 1992

susu.ru/en

Designed core radars, sonars, and combat systems submarines.

Designed Industrial automation ultrasound laser-based system in hot metal-processing quality control.

Designed broadcasting radio-frequency equipment up to 30KW.

Senior Staff Engineer/Team Leader

Scientific-Research Institute of Measuring Equipment - Chelyabinsk, Russia

January 1976 to December 1985

niiit-rk.ru

Designed and developed methods and equipment for flight and ground control of aircraft navigation landing systems for spaceships, airplanes, helicopters, included landing to aircraft carriers and cruisers. RF design up to 40 GHz.

Designed complex equipment for location police vehicles: Base Stations and modem in vehicle.

Designed microprocessor-based portable Doppler speed detector for police force around 10GHz.

Education

Ph.D. in Electronics Electronics Engineering

Urals State University, Yekaterinburg, Russia www.urfu.ru

November 1984

Skills

- Visio
- Laboratory experience
- Signal processing
- System architecture
- 3G
- Systems engineering
- PCB
- Maintenance
- Research
- Research & development
- Technical writing
- Python
- Cloud architecture
- Computer networking
- Proposal writing
- LabView
- POS
- Medical imaging
- Manufacturing
- Digital design
- Aircraft maintenance
- High voltage
- Electrical experience
- Project engineering
- Requirements analysis
- Debugging
- Firmware
- Mentoring
- SoC
- Sensors
- FPGA
- Autodesk

- C
- Mechanical engineering
- Project leadership
- ISO 13485
- Ethernet
- Microsoft Office
- Microsoft Powerpoint
- Zigbee
- ARM
- Leadership
- NEC
- Scientific research