Scott Allan Olson, P.E.

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RF/Analog Electrical Engineer

Proficient hardware engineer able to envision, design and create what was thought impossible

- Developed fully integrated SiGe HBT distributed amplifiers with narrowband amplifier efficiency
- Developed a CMOS programmable delay line with time resolution 10 times the state-of-the-art
- Proficient with Cadence, ADS, SPICE, C, LabVIEW, BASIC, assembler
- Nine issued US patents, One company trade secret, Five published IEEE technical papers

Experienced in all phases of wireless product life cycle

- **Research**
  - Designed architectures and circuits to enable software defined radio
  - Designed RF transceiver hardware for developing standards: iDEN, EDGE, etc.
  - Designed high efficiency linear RF amplifiers: supply modulation, LINC, dual mode
- **Development**
  - Designed a custom 2x4 MIMO OFDM SDR transceiver (xG Technology)
    - Worked from baseband digital signal processing to antenna port
  - Developed an advanced spectrally efficient TDMA 800 MHz portable radio (Motorola)
    - Designed complete transmitter including discrete level subsection designs
    - Performed all RF subsection testing and complete transceiver testing
  - Participated in the development of Motorola's first conventional 800 MHz handset
    - Performed all testing for product acceptance, FCC filing and type acceptance
- **Test**
  - Developed manufacturing tests for flex, PCBs, assemblies and antennas using LabVIEW
- **Maintenance of the Line**
  - Resolved factory and field issues with VHF and UHF land mobile portable radios
  - Coordinated with Field Engineering, Factory/Test Engineering and Marketing

Experience:

System Engineer III, SR Technologies Sunrise, FL 2019

- Development of mission-critical satellite, WiFi, and aviation technologies to major business, government and non-government customers

Senior RF Engineer, Kitchen Brains Ft Lauderdale, FL 2019

- Wireless sensors for commercial monitoring/automation. Identified and characterized LoRa as a solution for placing wireless sensors inside a walk in cooler without needing repeaters
- Evaluated embedded WiFi/BLE antennas

Electrical Engineer 4, Harris Sunrise, FL 2018

- Redesign of a tactical radio transceiver due to the obsolescence of custom RF ASICs

Senior RF Electronics Architect, Stimwave Ft Lauderdale, FL 2015-2018

- Worked on implantable neurostimulators, powered and controlled by external RF signals
- Designed 12 and 50 watt 869 and 915 MHz transmitters housed in palm sized cases, powered by a lithium battery. Rebanded the 12 watt transmitter to 430 MHz
- Created automated manufacturing tests in LabVIEW for neurostimulator implant flex boards, completed implantable neurostimulators, microwave field stimulator PCBs, completed microwave field stimulators, system assemblies, and antennas
- Automated the field stimulator calibration process
- Made the implantable stimulator more robust to large signals (MRI and RF)
- Added the ability to measure forward and reflected signals in order to detect antenna damage and evaluate stimulator response

Principle RF Electrical Engineer, xG Technology Sunrise, FL 2011-2015

- Designed a 915 MHz 2x4 MIMO SDR OFMD transceiver. Digital I/O to antenna ports
- Drafted specifications, performed cascade analysis and simulations, evaluated prototype
- Obtained FCC Part 15 approval and finalized design for production
- Participated in custom OFDM waveform development and characterization
- Wrote a real time custom OFMD vector signal analyzer in LabVIEW

Senior RF Electrical Engineer, Sunair Electronics Ft Lauderdale, FL 2010-2011

- Designed a three stage 150 watt HF linear RF power amplifier (1.5-30 MHz)

RF Engineer/Hardware Lead, HSDI (Isaac Daniel Group) Miramar, FL 2010

- Lead hardware engineer for a wide range of commercial and government product prototypes
- Designs incorporated GPS, GSM, ISM, Bluetooth, Iridium, Smart Card, and wireless power

Consultant/Contractor, Test Equipment Rental/Sales, ScottRF LLC Davie, FL 2009-present

- Contractor for ID Coach and HSDI (Isaac Daniel Group), Miramar, Florida
  - RF design for wireless products: 915 MHz 1Mbps DSSS, GPS, antennas
  - Designed wireless power for a finger print sensor combined with an RFID
- Consultant for Lashbrook Guitars, LLC, Fort Lauderdale, Florida
  - High fidelity mixer and preamp for piezo and magnetic guitar pickups
  - PLC control system for a guitar body carving machine
- Contractor for Audix, Wilsonville, Oregon
  - Evaluation of wireless microphone design
- Contractor for NuCurrent, Chicago, Illinois
  - Wireless power
- Lab includes: VNAs, vector signal generators, vector signal analyzers (RF, IF and baseband), spectrum analyzers, modulation analyzer, power meters, power supplies, oscilloscopes, function generators, DMMs
- Test Equipment Rental and Sales

Principle Staff Electrical Engineer, Motorola, Motorola Labs Plantation, FL 1999-2009

- Designed integrated efficient distributed amplifiers in Jazz and IBM SiGe HBT BiCMOS
- Designed a 1 psec resolution delay line in 90nm CMOS for an integrated DDS synthesizer
- Participated in the development of a self-organizing wireless network (became Zigbee)
- Developed a supply modulated RF power amplifier (led to adoption in NEXTEL iDEN handset)
- Participated in the development of location systems: FM & ultra-wideband (Xtreme Spectrum)

Lead Electrical Engineer, Motorola, Applied Research Plantation, FL 1991-1998

- Designed high efficiency linear RF power amplifiers: envelope tracking, LINC
- Designed linearizer for an 800 MHz Cartesian feedback transmitter – led to iDEN radio
- Designed an demonstrated a two-way FM radio power control system incorporating a vocoder running on a DSP56000 for speech compression

Electrical Engineer I, Motorola, Advanced Development Plantation, FL 1988-1990

- Participated in designing the transceiver for a spectrally efficient 800 MHz TDMA digital radio
- Developed transmitter, transceiver layout, IC programmer, DC switch, programmable ALC

Electrical Engineer II, Motorola, HT 90/440 Development Plantation, FL 1986-1987

- Resolved factory and field issues with VHF and UHF portable land mobile radios

Graduate Research Assistant: Auburn University Auburn, AL 1984-1985

- Studied power line characteristics and noise for power line communications

Whirlpool Fellow: Auburn University Auburn, AL 1983-1984

- Designed and implemented the hardware for a power line carrier computer network

Patents:

1. US 7319870B2 Method for subscribing to a wireless service
2. US 7102429B2 RF amplifier with enhanced efficiency
3. US 6768378B2 Distributed RF power amplifier with load compensation
4. US 6650185B1 Frequency selective distributed amplifier
5. US 6573792B2 Feedforward amplifier
6. US 6556080B1 Feedforward notch filter
7. US 5901346A Method and apparatus utilizing a compensated multiple output signal source
8. US 5892395A Method and apparatus for efficient signal power amplification
9. US 5541554A Multi-mode power amplifier

Five worldwide patents, Two European patents

Publications:

Distributed Amplifier with Narrowband Amplifier Efficiency
Olson, S.; Thompson, B.; Stengel, B.;
Microwave Symposium, 2007. IEEE/MTT-S International, 3-8 June 2007, Pages: 155-158

Distributed Power Amplifier with Electronic Harmonic Filtering
Bruce Thompson, Bob Stengel, Scott Olson, Nicholas Cafaro.
Radio Frequency Integrated Circuits (RFIC) Symposium, 2009 IEEE, 7-9 June 2009, Pages: 341-344

A 100 MHz - 2.5 GHz Direct Conversion CMOS Transceiver for SDR Applications
Cafaro, G.; Gradishar, T.; Heck, J.; Machan, S.; Nagaraj, G.; Olson, S.; Salvi, R.; Stengel, B.; Ziemer, B.;
Radio Frequency Integrated Circuits (RFIC) Symposium, 2007 IEEE, 3-5 June 2007, Pages: 189-192

A Self-Calibrating Sub-Picosecond Resolution Digital-to-Time Converter
Nagaraj, G.; Miller, S.; Stengel, B.; Cafaro, G.; Gradishar, T.; Olson, S.; Hekmann, R.;
Microwave Symposium, 2007. IEEE/MTT-S International, 3-8 June 2007, Pages: 2201-2204

LINC imbalance correction using baseband preconditioning
Olson, S.A.; Stengel, R.E.;
Radio and Wireless Conference, 1999. RAWCON 99. 1999 IEEE, 1-4 August 1999, Pages: 179-182

Education:

Auburn University, Auburn University, Alabama
Master of Science, August 1985, GPA: 4.00
Thesis: The Power Lines as a Control Channel for a Home Computer Network

Bachelor of Electrical Engineering, December 1983 – with honor, GPA: 3.52

Honor societies: Phi Kappa Phi, Eta Kappa Nu, Tau Beta Pi, Upsilon Pi Epsilon

Other Information:

- Florida Professional Engineer, PE 0048278
- IEEE MTT-S workshop presenter