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I am an embedded systems designer who has worked primarily in the rf industry, and has experience with the full software & firmware development cycle as well as hands-on experience in electronics manufacturing.

While most of my experience has been with embedded systems and with automating test equipment, I am open to working with other types of software.

I have experience with remote work, and I have a distraction-free work environment including a basic electronics lab.

## **SKILLS**

Git, SVN, Linux, DOS, Bash, command line, shell scripting  
C, Python, Java, HTML/CSS/JS, currently learning Rust  
Bare-metal firmware, unit testing, static analysis, board bring up, debugging  
Digital circuit design, including microcontrollers (mostly Microchip PIC processors)  
Design for manufacturability and design for test  
Schematic capture and PCB layout  
Single Board Computers and industrial mcu boards  
Communications protocols and interfaces such as GPIB (HPIB, IEEE-488), USB, SPI, I2C, UART (RS232, RS-485, RS-422), TCP/IP, UDP  
Automation of test equipment such as network analyzers, spectrum analyzers, oscilloscopes, signal generators, DMMs etc.  
Testing, calibrating, and troubleshooting digital, analog, and rf circuits  
Experience working with legacy code and older languages and with porting applications between languages/platforms  
Personal experience with Raspberry Pi, Beaglebone, Arduino / Atmel, SDR, IOIO, Android, Unity3D, Virtual Worlds (OpenSimulator)

## **WORK HISTORY**

**TelGaAs Inc.** O'Fallon, MO Jun 2017 - Nov 2019

microwave equipment manufacturer

This was a fully remote contract

Designed microcontroller boards; drew schematics and laid out PCBs

Wrote bare metal firmware in C; configured network modules for IoT products

Performed testing, tuning, and component level troubleshooting of active microwave filter circuits and digital circuits

Analyzed and plotted test data

Provided remote support of coworkers and customers with updating firmware, configuring and troubleshooting systems etc.

Wrote documentation

**SimWave RF & Microwave Design**, Londonderry, NH Feb 2015 - Jun 2017

microwave equipment manufacturer (now part of TelGaAs Inc.)

This was a partially remote position

Designed microcontroller boards; drew schematics and laid out PCBs

Specified and purchased electronic components, circuit boards and subassemblies

Wrote bare metal firmware in C; Configured network modules for IoT products

Implemented computer-controlled calibration and testing of products for increased speed and accuracy

Designed and programmed both GUI and command line software to control products and development boards and to acquire and analyze data from test instruments

Analyzed and plotted test data in Excel

Wrote scripts to automate and test GUIs and to automate remote testing of embedded devices

Performed testing, tuning, component level troubleshooting and repair of active microwave devices, and various digital and analog circuits

Built prototypes, test fixtures, cables etc.

Wrote documentation

**Q-Filter Products** Amesbury MA Nov. 2006 - Jan. 2015

Active RF filter manufacturer (a division of Bartley Machine Co.)

Designed Microchip PIC processor based embedded systems

Drew schematics and laid out PCBs

Specified and purchased electronic components, circuit boards and subassemblies

Wrote bare-metal firmware in C

Configured network modules for IoT products

Wrote desktop software to control products and instrumentation

Wrote Java applets to control IoT devices

Implemented computer-controlled calibration and testing of products for increased speed and accuracy

Performed testing, tuning, component level troubleshooting and repair of active microwave filter circuits and other rf devices, and various digital and analog circuits

Analyzed and plotted test data in Excel

Wrote documentation

Built prototypes, test fixtures, cables etc.

**Micronetics Inc.**, Hudson NH 1999 - 2005

Manufacturer of mil-spec microwave signal processing devices (now part of Mercury Systems)

Designed, programmed, and implemented instrument control systems using PC's, embedded computers, and various GPIB and serial instrumentation

Performed testing, tuning, component level troubleshooting and repair of active microwave filter circuits and other rf devices, and various digital and analog circuits using network analyzers, spectrum analyzers, oscilloscopes, power meters and other instruments;

Wrote firmware (in C and assembler) used in microcontroller based products

Wrote software in Pascal and Visual Basic, ported software from HP Basic and other obsolete languages

Wrote Acceptance Test Procedures and other documentation

Built prototypes, test fixtures, cables etc.

**Vectronics Microwave Corporation**, Middlesex NJ 1985 - 1999

Manufacturer of mil-spec microwave signal processing devices (now part of Mercury Systems)

Designed, programmed, and implemented ATE systems using PC's, Hewlett Packard computers, and various HPIB and analog instruments;

Implemented computer-controlled calibration and testing of products for increased speed and accuracy

Tested and calibrated active microwave devices using network and spectrum analyzers, oscilloscopes, and other instruments;

Designed, prototyped, tested and performed component level repair of various digital and analog circuits such as interfaces (IEEE-488, RS-232-C, etc.), amplifiers, and voltage controlled oscillators;

Designed and wrote software for Basic Stamp based devices

Wrote engineering software in various languages

Created CAD drawings

Built prototypes, test fixtures, cables etc.

**EDUCATION**

Trenton State College, Trenton NJ, majored in Physics

University of Scranton, Scranton PA, majored in Engineering Science