

JOSEPH ELLIS STEWART

CONTACT

404-747-3355
joseph.stewart@gmail.com
Los Angeles Metro Area

SKILLS

Linux / Embedded Linux
Bare metal
FreeRTOS
RTEMS
Zephyr

ANSI-C, C89, C11

JavaScript

Lua

Tcl/Tk

Rust

Zig

Go

Elixir / Erlang

Embedded development

Network programming

Device protocols

DSP interfacing

FPGA interfacing

Relational databases (SQL)

Time-series data-stores

(InfluxDB, Prometheus)

Data visualization (Grafana,
d3.js, p5.js)

ARM, ESP/Tensilica, IA-32/
x86-64, RISC-V, SPARC, AVR,
PIC

PATENTS

*"Techniques of adding
security patches to embedded
systems"*
USPTO 10,235,161

*"Streamlined distribution of
GPS assistance data"*
USPTO 8,680,987

SUMMARY

A highly skilled engineer who works smart and loves challenges and new opportunities.

Team-player who enjoys solving problems through the use of experimentation and observation to develop innovative solutions.

Proven track record of building and delivering embedded devices and server / network-based products for consumer and industrial markets.

EXPERIENCE

Principal Engineer, on assignment at Meta; Los Angeles — 2016–Present

Lead software engineer working on the research team developing a high-speed mmW communication system in low-Earth-orbit and on-aircraft with accompanying urban and mountain-based ground stations.

Developed software for devices-in-flight and ground station control using Linux, Embedded Linux, several different RTOS, and bare-metal software, implemented using C and Python.

Designed a data collection and visualization platform for evaluating flight telemetry using a time-series database and real-time graphing front-end.

Developed lab instrument control and device-under-test automation system used internally and by partners for communication device validation.

Partnered with Meta researchers and field teams to evaluate and deploy communication systems during flight tests under short deadlines.

Developed a system to collect disparate metrics from multiple RF test devices into a unified data-store back-end and visualization front-end.

Digital Expert, United States Digital Service; DC — 2015–2016

Technical lead driving and evaluating performance improvements for browser and server-based JavaScript healthcare record system used by all United States VA hospitals.

Created software to replace a broken Adobe PDF-based system used for Veteran health benefit sign-up with a reactive front-end and a cloud-based back-end.

Migrated a client-server-based system to a cloud-based endpoint.

Principal Engineer, American Megatrends; Atlanta — 2015

Training, support, and software for lights-out management (IPMI) stack used in OEM customer's high-availability server platform.

Lead the transition from Python to Lua for next-generation designs.

Developed patent for non-intrusive security updates of in-field devices.

ADDITIONAL SKILLS

QNX
VxWorks
PSOS
Nucleus RTOS
PowerTV
OpenCable App Platform
Plan9/Inferno

Bash
Forth
Perl

Wireshark / tcpdump
Debuggers
Oscilloscopes
Logic analyzers
Schematic review
Component selection
Lab device automation

CAN, I2C, I2S, IPMI, GPIO,
MIDI, MIPI, PCI, RS232/485,
SPI, USB

CoAP, DAVIC, HTTP(S), IpSec,
MPEG, MQTT, NMEA, NTP,
SNMP, SSL, SSH, XMPP/Jabber

SCPI/VISA

MIPS, PowerPC, 68K,
Transputer, Propeller,
X86, Z-80, 6502, 8051

PUBLICATIONS

*"Demonstration of a 40Gbps
Bi-directional Air-to-Ground
Millimeter Wave
Communication Link"* : IEEE

*"Experimental Demonstration
of Digital Pre-Distortion for
Millimeter Wave Power
Amplifiers with GHz
Bandwidth"* : IEEE

Consultant, on assignment at Cisco; Atlanta — 2014–2015

Designed hardware and software for an outdoor-hardened monitoring system intended to prevent endangered species poaching in Africa.

Developed open source library for Cisco's IoT messaging component.

Created software and documentation for next-gen core routing component.

Debugged critical throughput problems for PicoChip's array device.

Principal Engineer, on assignment at Coca-Cola; Atlanta — 2014

Designed a database component used in Coke's widely deployed FreeStyle beverage dispensing device.

Assisted debugging device's X86 controller with the iMX/ARM processor.

Technical Marketing Engineer, Intel Corporation; Folsom — 2011–2013

On-site support for phone / tablet partners using Intel/Atom in new designs.

Created drivers for displays, cameras, and power management hardware.

Developed documentation and training for I/O management subsystem.

Manager / Senior Engineer, Cisco / Scientific-Atlanta; Atlanta — 2003–2011

Manager and developer of a femtocell provisioning system and access-point used by AT&T and deployed to over 2 million homes in the US.

Designed a server-based system to monitor / mitigate faults, and optimize network elements in cable TV networks used at Time Warner, Comcast, Cox Communications, Rogers Communications.

Developed a telemetry collection system used on millions of cable TV set-top boxes at all US cable providers. Product had strict limits on memory usage.

Senior Engineer, Continuous Computing; San Diego — 2001–2003

Created boot-loaders, device drivers, application code, user interfaces, and root filesystems for CCPU's telco rack management product.

Organized legacy code and automated product's software build systems to minimize release errors and reduce release time to customer.

Developed a code escrow system to build the product which was used to honor investor agreements and offer product and development continuity and confidence.

Senior Engineer, Intel; San Diego — 2000–2001

Created a console user interface for Intel's SSL accelerator appliance.

Organized team's extensive codebase and build system into a consistent component library used by multiple developers across multiple teams.

Lead Engineer, Sony; San Diego — 1998–2000

Designed software for a ATSC/DirecTV set-top using two independent decode subsystems. Sony's SAT-HD100 was considered best-in-class.

Updated legacy DirecTV device to add new features for Pacific Bell.

Provided mentorship to junior engineers. Managed contract engineers.