CORBETT J. CAPPON
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SUMMARY

Highly adaptable software engineer with background in electrical engineering. Proficient at integrating hardware with software. Background includes embedded programming, medical device programming, GUI design, test engineering, and integrated circuit design.

TECHNICAL SKILLS

Languages	C/C++, Python, MicroPython, C#, Visual Basic, .NET, bash shell scripting, VHDL, Verilog, Java, Assembly, MATLAB
Platforms	Microsoft Windows, Linux Ubuntu, Zephyr, FreeRTOS
Software Design Tools	Visual Studio, Visual Studio Code, PyCharm, Netbeans, Xilinx, Eclipse
GUI Design Tools	Qt 5 and 6, Windows Forms, Kivy, OpenGL
Circuit Design Tools	Cadence, AutoCAD, PSpice, EAGLE PCB Design Software
Other Tools	CANopen, PID Control, Oscilloscope, Basic lab equipment, Subversion, GIT, UML, Scrum / Agile, MS Office, Fogbugz, Kiln, Jenkins, Rhino Mocks, Unit Testing, PEP 8 and Google Style Guide

PROFESSIONAL EXPERIENCE

Planet Innovation (Previously BIT Group USA), Irvine, CA August 2018 to February 2023
Senior Software Engineer
Develop firmware and software for Planet Innovation medical devices.

Primary firmware engineer for NOVEOS medical device by Hycor:

- NOVEOS is a desk sized, high throughput, class II in vitro diagnostic medical device.
- Firmware is written in C++, uses FreeRTOS, and runs on ARM microcontrollers.
- Completed all firmware changes for two major releases and several minor releases.
  - Updated firmware to accommodate removal of several hardware components.
  - Updated firmware scheduler to allow for different chemistry incubation times.
- Provided technical support to customers, manufacturing engineers, and other Planet Innovation departments, for firmware and system problems.

Additional support for in vitro diagnostic medical devices:

- Provided work estimates for upcoming firmware projects at the Irvine location.
- Created Zephyr program to emit ADC readings over CANopen at a rate of 2 kilohertz.
- Researched platform improvements (reliability, cost reduction, serviceability, EtherCAT).
- Fixed all high priority bugs related to Laboratory Information System (LIS) messaging.
- Created alignment and hardware testing scripts in Python, with associated graphical interfaces, while adhering to the PEP 8 style guide.

Jabil Chad Automation, Anaheim, CA June 2015 to August 2018
Design Engineer II
Develop embedded software for WaferMate semiconductor wafer handling robotic systems.

- Co-wrote, in C#, a customized version of a third-party application to replace the WaferWare wafer handling software. Eventually became primary developer of the software.
- Created, tested, and integrated, driver software and graphical user interface for two wafer measuring tools (~4000 lines of code each).
- Completed tasks with minimal oversight, while maintaining safety, budget, and schedule.
- Traveled to semiconductor fabrication facilities in China, Taiwan, South Korea, Austria, and the United States, to troubleshoot software, without internet access.
- Performed maintenance and debugging on a 100,000+ line code base.
    - The code is non-modular, has minimal documentation, and often has complex control flow, requiring an ability to quickly read and understand code.

Western Digital Corporation, Irvine, CA July 2014 to June 2015
FIT-U (Functional Integrity Test) Engineer
Developed and maintained validation test software for internal hard drive firmware.

- Served as the primary engineer for debugging two hard drive firmware testing scripts.
- Created a 5000 line script in a C-like proprietary programming language which tested a new hard drive firmware feature, and its interactions with other hard drive features.

EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES Graduated June 2014
BS in Electrical Engineering, Computer Engineering Option, Computer Science Technical Breadth, GPA 3.3

Electrical engineering coursework: Systems Design, Feedback Control, Digital Signal Processing, Digital Circuits, Analog Circuits, Digital Logic Design, Electromagnetic Waves, Circuit Measurements Lab

Computer science coursework: Programming Languages, Algorithms, C Programming for Embedded Systems, Computer Networks, Computer Systems Architecture, Operating Systems Principles, Introduction to Computer Graphics, QT 5 and 6, MicroPython

ENGINEERING PROJECTS

(Pictures and additional projects can be found online at corbett.cappon1.com)

UCLA IEEE Micromouse Project Fall 2012 – Spring 2013

- Created a small autonomous robot that traversed a ten foot square maze using sensors, embedded microcontroller programming, algorithms, and circuit design. Our team took fourth place in a state competition.
- Designed power and mode indication systems using EAGLE PCB Design Software.
- Programmed motor controllers in C++ using sensor feedback on a microcontroller board with an ARM processor.

Space Elevator Ribbon Climbing Robot Fall 2010 – Spring 2011

- Designed and manufactured, as part of a three student team, a robot which climbed a thin plastic ribbon, stopping and starting on wireless command. The robot competed in the 2011 International RoboGames Competition.