Michael Bryan Kelly
5808 E. Hwy 98, Apt 130, Panama City, FL 32404
Mobile: 850-896-2714 mbryankelly2@gmail.com
July, 2017

We make it work! This has been my personal albeit informal job description for many years. The engineering community accepts challenges, surveys the available assets, and forges a working system. We do what it takes to make it work. Engineering is seldom a single person endeavor so the emphasis is on the word "We."

I write this introduction because I understand that most resumes receive their first Go/No-Go evaluation in the first few seconds. Including too much of anything will immediately direct it towards the reject stack. The anticipated audience for this introduction is the hiring manager who is looking to see if there is more to the candidate than can be easily expressed in a formal and succinct resume. This introduction presents the case that I do have those additional abilities.

I am searching for a position as a systems engineer, project lead, or software engineer for a project that leans toward the hardware side. My extensive hardware background provides a rare ability to understand your system from the 30,000 foot overall view down to the component level.

I departed the Navy as ET1(SS) (Submarine Service qualified). The submarine service has some of the finest and most intense schools in the military. I have graduated from more than three years of classroom and laboratory electronics training in the finest schools the Navy had to offer. I usually graduated at or very near the top of the class. Periods at sea were interleaved with classroom training, meaning that what we learned in class was, in short order, put to use in the field. I have had hands on experience with radar, sonar, various RF receivers, and computer repair down to the component level. I am comfortable with all manner of laboratory equipment. I took the E-6 test on my first opportunity not long after the four year mark in my enlistment and was promoted, early for every segment of the Navy. This solid and thorough understand of electronics has proven advantageous throughout my career.

Upon leaving the Navy I took a position at Texas Instruments in Houston Texas as a Master Electronics Technician. I learned the new hardware very quickly and was frequently called on and repaired equipment I had never seen before. I continued my college courses through a company move to the Dallas area and graduated with a 3.5 GPA while working full time. My degree in Computer Science is not limiting. It was not even a starting point, rather a major milestone.

Since leaving the Navy I have never done the same job twice and have succeeded at all. I am an engineer at heart. Give me the problem and I will find the way. When needed I will actively and eagerly search out additional knowledge and expertise and listen to what they say.

In 2009 the 83rd Fighter Weapons Squadron at Tyndall AFB in Florida had purchased new telemetry decom equipment from Wyle TDS (Telemetry and Data Systems, this group was recently purchased by Smartronix). Wyle was expected to provide an experienced engineer to commission their new G2 decom systems. When Wyle was not able to provide an engineer **experienced** on this hardware the Technical Advisor at Tyndall met with me and decided I could do the job. I became the sole Real Time Telemetry Engineer. After a two day training course from Wyle and another two day class from Symvionics (the vendor for IADS, Interactive Analysis and Display System) I was on my own. I was the one to open the boxes and commission the hardware and software. Within the first two months the system was capturing and displaying telemetry from air to air missiles. Within another few months the paper strip charts and complex patch panels were no longer being used. I have been continually improving the system and the process ever since.

Beginning with the simple telemetry streams I began working the more complex telemetry formats for the later missiles. The missile engineers constantly search for ways to better utilize the available bandwidth. Every trick they use to embed more parameters into the telemetry stream requires me to understand and reverse the process for real time display. I work very closely with the missile analysts and provide them with the displays they need to monitor missile performance as events take place out on the range.

Part of my task is to continuously accommodate changes in missile software and in the subsequent telemetry stream. Within even a single line of missiles the telemetry maps (documents that describe the telemetry stream) have significant changes in format. Recognizing that all the telemetry maps could be imported into Excel workbooks I developed Excel VBA code to read the disparate documents, extract and reformat the information I needed, and build a standardized workbook. Once there I developed additional code to produce workbooks and CSV (Comma Separate Value) files that are imported directly into the G2 system and the IADS system saving many hours of tedious error prone labor. Many parameters required that the G2 use “derived” parameters whose expressions must be written in a language that combined syntax from C and Basic. I wrote Excel VBA code to examine the parameter definitions and write that code for the derived expressions. The final syntax was rather limited but I did enjoy writing code that writes code. My systems can now automatically build the configuration files for missiles with over 19,000 parameters.

We capture the live air to air telemetry from all the missiles in the U.S. fielded inventory shooting up to twenty missiles in one four hour period. On any given mission we are ready to capture telemetry from up to four missiles in the air simultaneously. We are continuously making changes to reflect the latest fielded software versions. In seven years we have always been 100% mission ready.

I move back in time to my previous position with Honeywell in Clearwater Florida. I was hired in as Principal Engineer but no specific task. Our product was a portable range tracking system containing two 5.2 meter tracking antennas and two completely

redundant channels for reliability. Its purpose was to be a self-contained tracking system that could be transported almost anywhere by air and be mission ready the day after we get there. The senior RF engineer said we were transitioning to a new antenna controller and handed me the schematics with the task of verifying compatibility and creating the new cabling. Within a few hours I knew exactly how to do the job, that it would be successful and provided the wiring list to do so. When that engineer moved to project manager of a sister project, short named B2, I was then the lead antenna engineer for the new project named B3. I became the liaison with Viasat, the antenna manufacturer, giving them extremely valuable and knowledgeable feedback on their systems. I developed Excel VBA code to automatically chart the antenna performance parameters.

On our first shadow mission tracking an Atlas Launch from Cape Canaveral Air Force Station in Florida, the antennas did not track well. When I charted the antenna performance data I quickly determined that the receiver AGC used to develop steering commands was saturated when the Atlas cleared the tower. At that point we were presented with the full signal from the Atlas rather than a re-radiated signal from behind the tower. The S-Band receiver was not performing to specification in that it was not able to handle inputs at the high end of the specified range. The AGC signal moved up to the supply voltage and was unable to track the level of the received signal. That rendered the antenna controller unable to extract steering commands from the unchanging AGC signal. I tested the receiver in the lab, confirmed my diagnosis, and the vendor made a design change. On my initiative I continued looking at the system implementation and discovered that the fiber optic drivers and receivers for the RF signals were designed for 10 or more kilometers of single mode fiber optics. We had approximately 100 meters of fiber optic cable between the antennas and our receivers resulting in overdriving of the fiber optic receivers. I purchased fiber optic attenuators and their installation produced a dramatic improvement in tracking performance. I sent attenuators with specific instructions to our sister system, then in Alaska, and they experienced immediate and dramatic improvements in their systems. I was awarded the Silver Honeywell performance award for this achievement.

The point of the preceding paragraph is that upon my initiative I began investigating the problems, discovered the root cause, and implemented the necessary changes.

At Honeywell I gained experience with DOORS, working with vendors and the customer, developing and refining requirements. I learned much about requirements and discovered I have a natural ability to develop and write requirements.

Prior to Honeywell I was a member of the Lockheed Martin team designing and constructing the CLCS (Checkout & Launch Control System) project at Kennedy Space Center in Florida. Its purpose was to perform all the checkout operations during the various phases of assembly and to conduct all the pre-launch tests and monitoring up to and through launch. I began as a test engineer writing and performing procedures to ensure the ground system gateway computers performed properly. I learned about the scripting language “Expect,” an adaptation to TCL (Tool Command Language) that provided the ability to easily log on to multiple computers and perform what would

normally be keystroke commands. My scripts replaced a test consisting of more than a week of tedious error keyboard entries with an automated and self-documenting test lasting a few hours. I automated tests that others thought could not be automated.

Most important, the testing was easily changeable and fully repeatable, extremely important with NASA and their launch systems. Soon after I was invited to write software to verify that the launch system communicated properly with the vehicle on the pad. In this position I was told only what needed testing. My task was to learn how the CLCS should work and how to test it. My tools were combinations of Microsoft Word, DOORS, RAZOR and C++ running in the Solaris environment. I documented how the system worked, how it was to be tested, and wrote the software to perform the tests.

Prior to that position I worked for Mei Technologies as the lead software engineer. I resolved some complex problems that the vendor was unable to fix. When the vendor went out of business and parts were no longer available I designed a Remote Access Controller for the security system. It used all off the shelf hardware. The software was written in C for MS-DOS and it controlled up to 16 sensors, two card readers, and an entry control devices such as doors and turnstiles. I wrote the software in an object oriented manner and it performed perfectly. While working the encryption code I investigated the software on the controller running under VxWorks and discovered a major flaw that caused the entire system to slow dramatically. I fixed it with one line of code.

Closing Notes

A job description is not limiting, it is the starting point. I will do what is necessary to make it work. Over the past eight years I have fulfilled the responsibilities of systems engineer, software engineer, and test engineer. I have found all my duties to be extremely enjoyable and satisfying. If you need an engineer to help you make it work, please contact me.

Respectfully,

Michael “Bryan” Kelly