Daniel Kenney

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Summary

I am an Embedded Systems Engineer with many skills that are not directly related to software. I have a B.S. in Physics awarded in 1984.

I have leadership skills from many years of team building and supervision of engineers and later through management of my dad's caregivers. I am driven to understand how existing technologies function and possess the ability to innovate new technologies and new ways to overcome challenges. I worked as a Simulation Developer, an Embedded Systems Engineer and a Windows Application Developer. I also have business expertise gained while self-employed as a consultant and later as head of my own corporation.

Work Experience

RileyKorp

Staff Engineer

October 2019 - Present, Titusville FL

Part-time

- Pursuing patents for my “Home Disaster Monitor and Alerting System” which incorporates USB, I2C, SPI, GSM/GPRS, WiFi and bluetooth,
- Researched and hired a patent attorney
- Created a detailed description of my invention for the initial patent application
- Awarded a patent for one feature of the monitor and I am continuing to pursue others
- Founded a corporation for the purpose of assigning my patents to it
- Completed prototype development including design and layout of electronics, design and fabrication of plastic enclosures and development of firmware in my home lab
- Constructed several versions of the monitor in order to refine and troubleshoot its design
- Hired a design consultant to re-envision the monitor’s appearance as interior decor
- Motivated staff using Agile project management techniques

Self-employed

Inventor

October 2013 - October 2019, Titusville FL

Part-time

- Developed concepts in electronics, aeronautics, software and medicine for the purpose of turning them into patented inventions
- Built and equipped my own firmware development lab using PlatformIO, Visual Studio Code, Arduino , Python, RTOS, and Git
- Developed firmware for ESP32 and STM32 microcontrollers
- Taught myself 3d modeling using FreeCAD
- Taught myself schematic capture and pcb layout using KICAD
- Taught myself how to operate and maintain FDM-type 3d printers

- Produced my own custom enclosure designs
- Incorporated a Raspberry Pi running Raspbian (a Linux derivative) into my lab's operations
- I built this capability entirely on my own through self motivation and determination.

Self-employed

Family Caregiver
April 2020 - October 2022, Titusville FL
Full-time

- Led my dad's nursing staff, including hiring and firing, and covering shifts when necessary
- Managed the household duty assignments, coordinated medical care and provided emotional support while my dad's disorder progressed from difficulty walking to becoming bed-bound
- Happily, Dad is still with us and my sister has taken over his care

Other Work Experience

Self-employed

Engineering Consultant
May 1998 - February 1999, Orlando FL
Full-time

- Developed algorithms to create an image of objects from a laser scanner's return signal in order to defeat potential scamming of a European vending machine that was to pay for recycling containers
- Developed a Windows graphical application to ascertain the quality of the generated image and developed an algorithm to parameterize it
- Used image parameters to teach the system which container did in fact correspond with the scanned barcode

LazerData

Senior Firmware Engineer
June 1996 - October 1997, Orlando FL
Full-time

- Used version control to determine which software modifications to an industrial sortation scanner had led to a read rate degradation from over 99% to less than 90%
- Pinpointed two changes that had caused the read rate drop that had been made by my co-inventor, who was also my manager
- Interfaced with my co-inventor and explained that my change method, which was to conduct troubleshooting to identify the exact reason a new customer's barcode wasn't being read since the reason was often unexpected and to always test changes
- Tasked as the only engineer who was allowed to make changes, troubleshoot new customer requirements and interface with production staff about the reconstruction scanners
- Traveled to the field to educate service installation personnel about the fundamentals of our reconstruction method in order to aid and improve troubleshooting of our reconsstruction scanner
- Incorporated various of serial interface protocols into the scanner product line including RS232, RS422 and RS485
- After operations were moved from Florida to New York I traveled extensively between the two states

- Instructed new software engineers on the operation of entire line of industrial scanners
- Educated new engineers about the fundamentals of barcode scanning and decoding as well as how each product's firmware operated
- Supervised changes to the product line's firmware, including the reconstruction scanner
- Mandated and emphasized the requirement to test all changes before release

Self-employed

Engineering Consultant
June 1995 - June 1996, Orlando FL
Full-time

- Updated irrigation performance simulation from DOS to Windows application
- Studied the existing simulation and its data collection processes before beginning migration to Windows application
- Taught myself Visual C++
- Coded and tested Windows based application
- Extended the irrigation simulation to include the effect of plants obstruction
- Developed an inventory system under a fixed cost contract
- Incorporated the use of Intermec portable handheld scanners
- Switched from Visual C++ to Delphi, an Object Pascal language, because of its built-in ability to handle relational databases
- Taught myself Object Pascal and SQL
- Coded search and sorting capabilities not included in the original specification
- Instructed warehouse personnel, who did not have significant computer skills, how to use the handheld scanners and operate the inventory software
- Learned to never add of functionality under a fixed pricing contract without renegotiation of the contract

LazerData

Senior Firmware Engineer
September 1991 - June 1995, Orlando FL
Full-time

- Implemented a method for assembling partial barcode scans which cut the cost of scanner's electro-optical system by 75%
- Studied the barcode reconstruction problem in detail before beginning to design the necessary data processing algorithms.
- Designed a process to collect data for research through the use of an existing scanner
- Developed Windows applications for testing different approaches to reassembling the barcode fragments
- Tested a new reconstruction approach on the PC application after discovering flaws inherent to the original approach
- Created innovative data processing algorithms, which led to me being named a co-inventor
- Taught myself 80960CA assembly, a RISC language, and wrote the bootstrap and interrupt code for the decoder board

- Led the effort to bring the decoder board up from bare metal using a storage oscilloscope, a logic analyzer and an inline debugger
- Led the effort to integrate the electro-optical scanner head with the decoder electronics and my firmware
- Accomplished the first decodes in our company's history from a barcode reconstruction method
- Refined my data processing algorithms to overcome many sources of data corruption including noise, human readable text near barcodes, extraneous barcodes and hardware tolerances
- Performed field trials in many different installations, each with its own sources of data corruption
- Supported production personnel in bringing up production line by troubleshooting early units
- Supported efforts to patent our company's invented methodology and later to defend against an infringement suit

Martin Marietta

Senior GNC Engineer
June 1984 - October 1990, Orlando FL
Full-time

- Operated a FORTRAN-coded 6 DOF simulation
- Evaluated design changes through statistical simulation runs
- Prepared design impact reports
- Taught myself performance simulation and statistical evaluation by studying the details of existing simulation code
- Taught myself Z80 assembly code
- Taught myself how to read digital electronics schematics
- Reorganized legacy firmware into a configuration that adhered to DOD-STD-2167A
- Discovered and corrected design errors while under severe budget and schedule constraints
- Led a team of a dozen college interns
- Documented the modified firmware in accordance with DOD-STD-2167A
- Evaluated FORTRAN-coded orbital simulation for adaptation to a hardware test
- Found an error in the propulsion system modeling and corrected it for the test simulation
- Correctly predicted the prototype's hardware-in-the-loop test performance
- Took initiative to rerun the performance analysis with corrected propulsion model
- Interfaced with the GNC design engineering, systems engineering management and test requirements management about the simulation error
- Developed man-in-the-loop simulation of manual tracking mode which included modeling of operational firmware, gimbal dynamics and missile flight dynamics
- Integrated all subsystems of the simulator
- At a critical time in the schedule, when the integration effort was plagued by an intermittent error, I volunteered to look at the Silicon Graphics application and determine if the error originated there
- Taught myself the C language
- Walked through roughly 6000 lines of code and removed vestigial software thereby cutting the application to roughly 500 lines of code
- Found the target imaging error and corrected in two weeks what had remained

unresolved for two months
- Documented the simulation according to company standards
- After the simulator was evaluated by Army personnel who praised it as ‘right on the money, I proposed the simulation be duplicated and used as a training aid for soldiers

Education

University of Central Florida

Graduate Studies in Computer Engineering

May 2000 - April 2001, Orlando FL

- Managed a research lab for traffic studies
- Learned Visual Basic, MATLAB and Java

University of Central Florida

Bachelor of Science, Physics

August 1980 - June 1984, Orlando FL

- Studied Physics, Mathematics through Differential Equations, Chemistry with Lab section, Electrical and Computer Engineering, Computer Science