Nathan Mayes

Electrical Engineering
Gardnerville, NV
-Email me on Indeed: http://www.indeed.com/r/Nathan-Mayes/44f5d7af06615cb8

Hands on and innovated electrical engineer with a passion for circuit design and analysis. Detail oriented with technical writing and love to ensure proper documentation. Passionate and self motivated to learn and use new technologies.

Authorized to work in the US for any employer

Work Experience

Lead Electrical Engineer Torque Sensor

Bently Nevada - Minden, NV
October 2021 to Present

• Lead engineer on the new touchless analog torque sensor digital processing unit
• Work with firmware engineer on board bring up and document hardware / firmware interface to all peripheral
• Tested critical thermal electrical component and alternates to meet intrinsic safety requirements.
• Identified alternate components during IC shortage for sourcing to use

Lead Electrical Engineer Orbit 60

Bently Nevada - Minden, NV
August 2016 to October 2021

• Delivered 4 separate analog Input and output cards for the Orbit 60 product that meet customer and business requirements
• PCB layout on all 4 Orbit 60 designs
• Verified and tested both signal and power integrity on all 4 Orbit 60 designs
• Designed for manufacturability on all Orbit 60 design with 100% in circuit test points for test engineering qualification
• Optimized design layout and placement to improve product through put
• Provided a 3d model for third party commercial team to use in sales pitch and commercials
• Identified thermal concern components and worked with mechanical engineer to better cool the parts to meet customer temperature requirements and the parts thermal rating
• Third Party reviewed other electrical engineer orbit 60 design to minimize the number of prototypes
• Researched, architect, design, test and qualify multi-Gigabit and multi-drop communication bus
• Presented to business stakeholders on new multi-Gigabit system to ensure complete sign off before starting execution phase of the project.
• Worked across engineering and sourcing disciplines to meet company deadline of product
• Documented hardware firmware interface, performance test specification and functional description
• Hands on with Lab equipment such as oscilloscopes, spectrum analyzer, soldering iron, BGA rework machine to qualify designs and minimize design defects
• Created, executed and released test plan and test report
• Found and qualified alternate parts for sourcing to use during component shortage

• Built and tested Orbit 60 API product to a third party EMC / EMI lab to ensure it is certified to sell to customers

• Innovated manufacturing process to improve product yield while minimizing redesign risk by adding unused components in the layout

Sustaining Engineer

Bently Nevada - Minden, NV
October 2015 to August 2016

• Qualified new components and memory for existing products
• Created an IEC 61508 SIL safety manual 3500/4x SIL safety manual for IEC compliance
• Created and qualified proof test plan for SIL safety manual approved by TUV
• Performed engineering reviews on third party component parts to ensure quality product
• Sustained 30-year-old products through updating designs and documentation
• Lead engineer for EMC certification on Wind product
• Worked directly with manufacturing to resolve defect saving company multi-million dollars in revenue over Christmas holiday
• Provided engineering analysis and design correction for safety cases related to manufacturing or design defects on existing products

Custom Product Engineer

Bently Neavada - Minden, NV
June 2012 to October 2015

• Provided engineering analysis on technical support cases to resolve customer issues
• Performed engineering third party review on all product modifications
• Modified existing product design to meet unique customer needs
• worked with planning and manufacturing on documenting and building custom products for customer
• Identified alternate components during part shortages
• Calibrated eddy probe sensors to measure customer rotating machinery within a few mils
• worked lab equipment to verify analog design
• Used precise mechanical measuring equipment to verify eddy current probe was within performance specification
• Redesign older customer modifications to work on updated products
• Design and built automated test fixture to qualify new parts including firmware, software and executive summary reports

Digital Signal Processing Engineer

Raven Electronics - Reno, NV
September 2010 to May 2012

• Developed signal detection algorithms used in Alberta, Canada emergency response system in assembly
• Designed 64-bit driver used on Raven’s M4x blade product
• Coded Analog DSP Blackfin for Raven’s voice over internet protocol module
• Programmed flash memory for custom customer products

Education

Bachelor of Electrical Engineering in Electrical Engineering

University of Reno Nevada - Reno, NV

August 2005 to May 2012

Skills

- PCB, Layout (7 years)
- Mathcad (9 years)
- MATLAB (2 years)
- Microsoft Powerpoint
- Microsoft Office (10+ years)
- Hyperlynx (5 years)
- Electrical engineering (9 years)
- FPGA (3 years)
- Altium (7 years)
- C (10+ years)
- AutoCAD (3 years)
- C++ (4 years)
- Soldering (10+ years)
- Lab equipment (10+ years)
- Test automation (1 year)
- Microsoft Excel (10+ years)
- CAD

Awards

Leading Adaptively at GE

November 2017

- Leadership training offered by General Electric at their campus in Crotonville New York
- Work with international colleges on developing teamwork to overcome challenging scenarios
- Exceled in the class and was recognized for my leadership skills at the closing ceremony

Patents

Two-step hardware authentication (#11062013)

https://patents.google.com/patent/US11062013B2/en?oq=15%2f910%2c589

July 2021

- Provide for two-step hardware authentication for machine monitoring systems.
- Concepts used in Bently Nevada Orbit 60 product

Publications

Safety Standards and systems for digital industry

https://dam.bakerhughesds.com/m/4a94190a2036a60b/original/oct-2016-COMPRESSORTEC-2-Safety-Standardsn-and-Systems-for-DIgital-Industy-pdf.pdf

October 2016

• Published article in CompressorTech 2 magazine on how to apply IEC 61508 to condition monitoring systems
• Outline example and equations on how to calculate a safety loop